

SELECT COMMITTEE ON
SCIENCE AND TECHNOLOGY

OVERSEAS AID

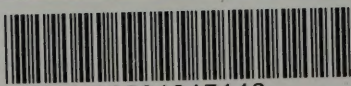
VOLUME I—REPORT

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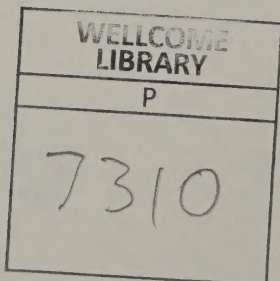
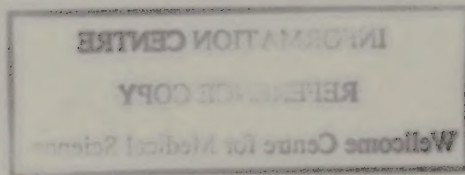
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VOLUME I—CONTENTS

	<i>Paragraph</i>	<i>Page</i>
REPORT		
PREFACE	1	7
PART 1 INTRODUCTION	1.1	8
PART 2 ORGANISATION	2.1	10
Types of aid	2.1	10
United Kingdom agencies	2.4	10
Subject areas	2.16	15
The recipients of aid	2.21	16
Effect of local circumstances	2.26	16
Multilateral aid	2.28	17
Comparison with other bilateral donors	2.32	18
PART 3 THE NEEDS OF DEVELOPING COUNTRIES	3.1	20
Technical change	3.1	20
Identification of needs	3.9	21
Population activities	3.19	22
PART 4 SCIENTIFIC AND TECHNICAL INFRASTRUCTURE	4.1	23
S&T infrastructure in developing countries	4.1	23
Education and training	4.10	24
Support services	4.21	25
Research	4.32	27
Technology	4.47	29
PART 5 THE UNITED KINGDOM'S RECORD AS A DONOR	5.1	31
Achievements	5.1	31
Capacity to provide S&T aid	5.4	31
PART 6 PLANNING S&T AID	6.1	36
Policies and priorities	6.1	36
Comparative advantage	6.12	37
PART 7 TRENDS IN ODA POLICY	7.1	38
"Projectisation"	7.2	38
Time scales	7.4	38
Delegation	7.14	39
The environment	7.22	40
Commercialisation	7.27	41
PART 8 OTHER DONORS	8.1	43
Multilateral aid	8.1	43
Co-operation between donors	8.12	44
Relationship between ODA and the British Council	8.20	44
Non-governmental organisations	8.24	45
The private sector	8.28	45
PART 9 OPINION OF THE COMMITTEE AND SUMMARY OF RECOMMENDATIONS	9.1	47
Opinion of the Committee	9.1	47
Summary of Recommendations	9.12	48
Appendix 1—Sub-Committee I (Overseas Aid)		51
Appendix 2—List of Witnesses		52
Appendix 3—List of Abbreviations		54

VOLUME II—CONTENTS

ORAL EVIDENCE

Page

Overseas Development Administration

Written Evidence	1
Oral Evidence, 1 March 1989	26

British Council

Written Evidence	40
Oral Evidence, 22 March 1989	57

Commonwealth Science Council

Written Evidence	73
Oral Evidence, 12 April 1989	74

Commonwealth Development Corporation

Written Evidence	84
Oral Evidence, 26 April 1989	87

Royal Society

Written Evidence	100
Oral Evidence, 3 May 1989	104

Ordnance Survey

Written Evidence	117
Oral Evidence, 24 May 1989	121

WaterAid

Written Evidence	128
Oral Evidence, 24 May 1989	130

Intermediate Technology Development Group Limited

Written Evidence	136
Oral Evidence, 7 June 1989	144

Christian Aid, OXFAM and CAFOD

Oral Evidence, 28 June 1989	155
---------------------------------------	-----

Agricultural and Food Research Council

Written Evidence	167
Oral Evidence, 12 July 1989	172

Rt Hon Lynda Chalker MP

Oral Evidence, 22 November 1989	183
---	-----

WRITTEN EVIDENCE

African Regional Centre for Technology	195
Agricultural and Food Research Council	195
All-Party Parliamentary Group on Population and Development	197
Association of the British Pharmaceutical Industry	202
BBC World Service	204
British Association for the Advancement of Science	205
British Consultants Bureau	206
British Council	207
British Petroleum plc	208
Building Research Establishment, Department of the Environment	214
Professor A H Bunting	214
Centre for Tropical Veterinary Medicine	218
Committee of Vice-Chancellors and Principals	219
Department of Trade and Industry	220
Food and Agriculture Organization of the UN	223
General Electric Company plc	224
Glaxo Holdings plc	226

	<i>Page</i>
Dr P Gummett	228
Professor David Hawkrige	229
Hydraulics Research	229
Institute of Biology	234
International Institute for Environment and Development	236
International Maritime Organization	237
International Pesticide Application Research Centre	240
Ministry of Defence	240
Natural Environment Research Council	246
Organisation for Economic Co-operation and Development	251
Organisation of Eastern Caribbean States	252
Overseas Development Administration	254
Overseas Development Natural Resources Institute	264
Overseas Development Institute	270
OXFAM	271
Oxford Forestry Institute	271
Dr Omar Abdul Rahman	274
Remote Sensing Society	275
Paul Richards	278
Royal Institution of Chartered Surveyors	280
Science and Engineering Research Council	282
Sri Lanka—High Commission	282
Dr T W Tanton	283
Tsetse Research Laboratory	286
United Nations Industrial Development Organization	288
University of Birmingham	292
University of East Anglia	293
University of Keele	293
University of Southampton	294
University of Stirling	295
Zambia—Ministry of Higher Education, Science and Technology	295
Zimbabwe—Ministry of Finance, Economic Planning and Development	295

Note: References in the text of the Report are as follows:

- (Q) refers to a question in oral evidence in Volume II;
- (P) refers to a page in Volume II.

FIRST REPORT

17 JANUARY 1990

By the Select Committee appointed to consider Science and Technology

Ordered to Report:

OVERSEAS AID

Preface

1. The Committee have conducted an enquiry into the United Kingdom's scientific and technical aid to developing countries.

2. The Committee appointed as their specialist adviser Mr Andrew Barnett, Leader of the Developing Country Group in the Science Policy Research Unit, at the University of Sussex.

3. The Committee thank those witnesses who gave evidence, both written and oral, to their enquiry. All are listed in Appendix 2. Most of the evidence is published in the volume which accompanies this report; the remainder may be consulted in the House of Lords Record Office.

4. In April 1989 the Committee visited the Overseas Development Natural Resources Institute at Chatham. The visit was made during the course of the Institute's relocation and reorganisation. The Committee are grateful to the Director and his staff for receiving them.

5. In order to witness at first-hand something of the UK aid programme in practice, and of the problems faced by developing countries, the Committee made two overseas visits. In June 1989 three members visited Nigeria and Ghana; in September three members visited India. The Committee thank very warmly all those who received them and who did so much to ensure that the visits were both informative and enjoyable.

6. The Committee fully appreciate the dangers of drawing general conclusions from their visits about the needs and circumstances of developing countries, which vary widely. While none of the countries which they have visited can be taken as a model for aid programmes elsewhere, the Committee have found that the evidence from these important recipients broadly supports their conclusions from other evidence.

PART 1 INTRODUCTION

1.1 Few could doubt that the world is currently undergoing a period of rapid scientific and technological change. Advances in the areas of biotechnology, information technology and materials, to name but a few, are opening up possibilities that until recently could scarcely be imagined. There is great potential for such advances, if properly harnessed, to contribute to progress in developing countries. But there is also a danger that they will further disadvantage those countries which do not have the physical resources and human capabilities needed to seize the opportunities which they present. Advances in remote sensing for example, if not applied for the benefit of developing countries, could simply enable developed countries to exploit even more of the world's resources and so widen the economic gap between North and South still further. It is therefore appropriate to consider the effectiveness of British aid to developing countries in relation to science and technology.

1.2 Aid is given by developed countries to less developed countries for a variety of reasons, some more self-interested than others: to alleviate poverty, to assist development¹, to improve or build international relationships, to pump-prime commercial markets, to promote political or economic stability.

1.3 Her Majesty's Government have made a clear statement of their aims in giving bilateral aid, in their reply to a report by the House of Commons Foreign Affairs Committee in 1987². "The aim is to promote sustainable economic and social progress and alleviate poverty in developing countries.... This is entirely compatible with also serving our political, industrial and commercial interests" (page 1).

1.4 The problems which developing countries face often arise from the failure of industry and agriculture to meet the needs of populations. As a result food, water supply, sanitation, housing, education, health care and employment are either inadequate or simply unavailable. The world's population is "growing at 1.7 per cent a year and it is expected to reach six billion by the end of the century" (P 198). As most of this growth takes place in the developing world, pressure on resources there will increase rapidly.

1.5 The contribution of science and technology to development is crucial. Agreement on this point is widespread (P 230, Q 82). The Overseas Development Administration (ODA) acknowledge that "change in the science and technology applied within countries is an inherent part of the development process" (P 1). The Royal Society note that excellence in the fields of science, technology and engineering "is a cornerstone of sustainable development" (P 100). Science and technology must therefore play a major part in any aid programme.

1.6 There is less agreement however on what areas of aid are influenced by science and technology, and it is rarely made explicit how science and technology contribute to the process of development. Science and technology are pervasive, and are embodied in all goods and services. They influence almost every aspect of development aid. ODA recognise that only some of what constitutes scientific and technical aid can be separately identified and quantified (P 2).

1.7 Concentrating on the more obvious S&T elements of the United Kingdom aid programme, such as research, could encourage neglect of less well-defined, but no less crucial, elements required to achieve technical change. According to the Organisation for Economic Co-operation and Development (OECD) attempts to define and quantify aid to science and technology tend to over-emphasise activities associated with Research and Development (R&D), at the expense of other aspects. Experience suggests that it is frequently these other aspects of science and technology that are quantitatively larger, and more important to the process of technical change, than formal R&D³.

1.8 The Committee have therefore conducted an enquiry not into aid to R&D but into scientific and technical aid (S&T aid). Although this is not a category which aid donors use in their planning or statistics, it has permitted the Committee to examine the whole spectrum of activities which

¹ "Development" is used in the aid community to indicate a combination of social, economic, industrial and agricultural progress. It has been the subject of earlier House of Lords reports, such as European Communities Committee, 21st Report (1980-81): *Development Aid Policy* [HL 146] and 15th Report (1983-84): *A Successor to the Second Lomé Convention* [HL 168].

² *Bilateral Aid: Country Programmes—Observations by the Government*, Cm 225, October 1987.

³ *Scientific and Technological Co-operation with Developing Countries*, OECD, Paris 1985.

contribute to the establishment of local S&T capabilities and infrastructures in developing countries, as well as those which attempt to harness science and technology to specific developmental aims.

1.9 The range of areas which the Committee have considered includes research and development, technology transfer, provision of expert advice and consultancy, materials and equipment, information, training, education. This last has been of special interest to the Committee for, as Mr Rajiv Gandhi, former Prime Minister of India, said in inaugurating a meeting of the Society for International Development in March 1988: "It is through good education that science and technology are pressed into the service of the betterment of the individual and the nation".

1.10 In their evidence, Hydraulics Research defined three distinct types of S&T aid, and the Committee have considered each of them:

"Problem solving: application of technology that already exists in developed countries to solve problems in developing countries;

Research: development of new technology to solve problems that are unique to developing countries;

Endogenous science and technology: development of a capacity to "unpack" imported technology and utilise it effectively and subsequently build own scientific and technological base." (P 230).

The Committee attach particular importance to the last of these three types of S&T aid, which will be the key to achieving sustainable development. A main theme of this report is that the value of S&T aid should be judged by its contribution to building local capabilities.

PART 2 ORGANISATION

Types of Aid

2.1 Aid to developing countries is given by the United Kingdom in a variety of forms: multilateral and bilateral aid, programme aid, project aid, technical co-operation. These and other types of aid are described below.

- (i) *Multilateral aid* is disbursed by an international organisation, from contributions made by individual donor governments. The European Community, the World Bank and the United Nations and its specialised agencies are the major multilateral donors.
- (ii) *Bilateral aid* is disbursed directly from the United Kingdom. It includes aid given on a government-to-government basis, and support of the work of British organisations concerned with development. Bilateral aid is used in a number of different ways, including the following:

Programme aid supports the financing of essential imports. It is usually offered to countries with severe balance of payments problems, who would not otherwise have access to adequate hard currency.

Project aid, sometimes referred to as capital aid, comprises grants or loans to fund the creation of new infrastructure (eg telecommunications) or productive capacity (eg a power station). Unlike programme aid, project aid is related to a particular investment proposal.

Technical co-operation is aimed at the transfer of skills to developing countries and to problem solving through consultancy and the provision of specialist professional services.

Local-cost aid covers those costs of a development project which arise from locally-procured goods or services. Local costs are usually paid by the recipient, but can be met by contributions from the donor where the recipient has insufficient funds.

2.2 The United Kingdom aid programme is an amalgam of these different types of aid, each appropriate for different objectives. In 1987 54.8 per cent of gross public expenditure on overseas aid was spent on bilateral aid, and 42 per cent on multilateral aid (the remainder covered administrative costs). Of the total bilateral assistance, 43 per cent was spent on Technical Co-operation². The balance between the different components of the aid programme changes from time to time, as needs change and priorities are re-defined. Figures 1 to 3 give some details of the composition of the United Kingdom's aid programme from 1979 to 1988.

2.3 The Committee concerned themselves in their enquiry primarily with the United Kingdom's bilateral aid. Most areas of activity were found to contain elements of S&T aid.

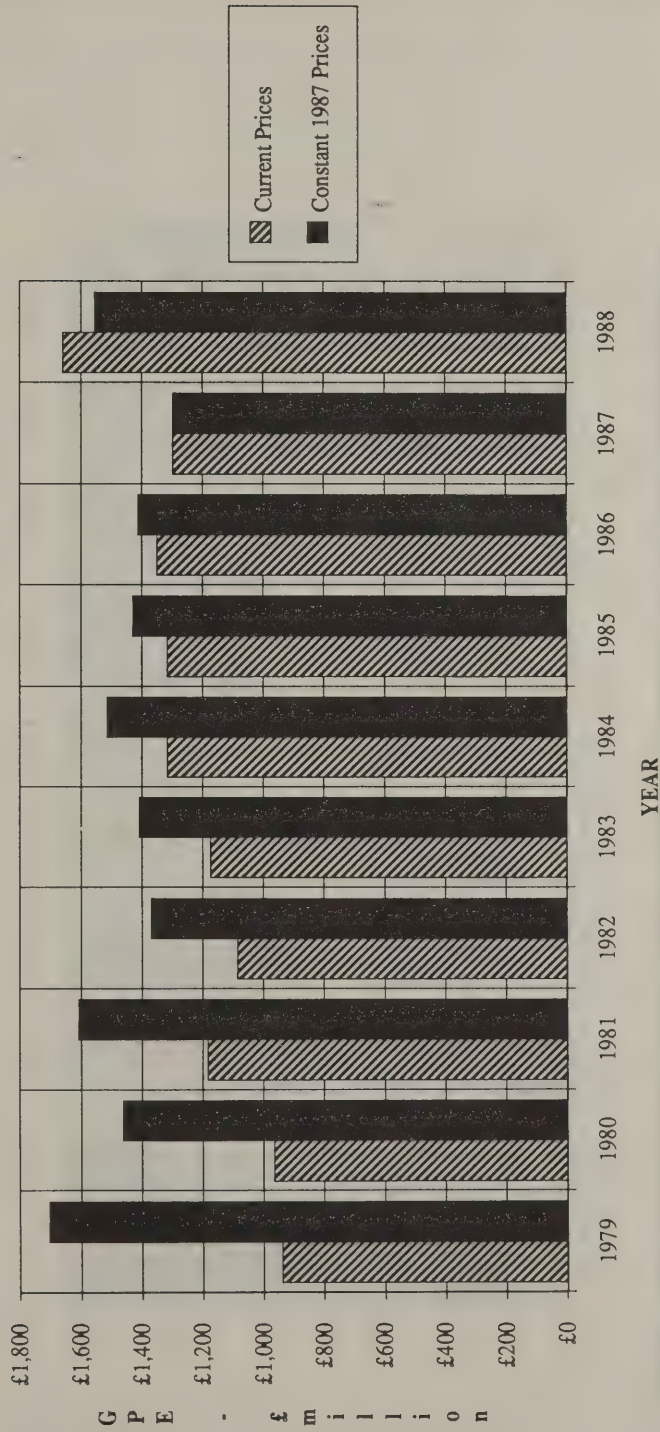
United Kingdom Agencies

2.4 Several United Kingdom agencies are involved in S&T aid. The Overseas Development Administration (ODA), a wing of the Foreign and Commonwealth Office, is the Government department with responsibility for management of the aid programme. The staff are organised into geographical departments dealing with different areas of the developing world, and into specialist departments dealing with key areas such as health, renewable natural resources and engineering. Development Divisions located in five regions—South East Asia, Central and Southern Africa, East Africa, the Caribbean, the Pacific—have delegated responsibility for planning and executing some activities in those areas. Elsewhere the British representation in major recipient countries includes staff responsible for development work.

2.5 In the light of consultation with the recipient, and with specialist advisers both in ODA and outside, staff of ODA select, assess and design potential aid activities. They then administer and monitor the execution of the activity. Finally they evaluate it for effectiveness and success. Many different criteria are considered including economic and financial returns, environmental impact, social implications and sustainability.

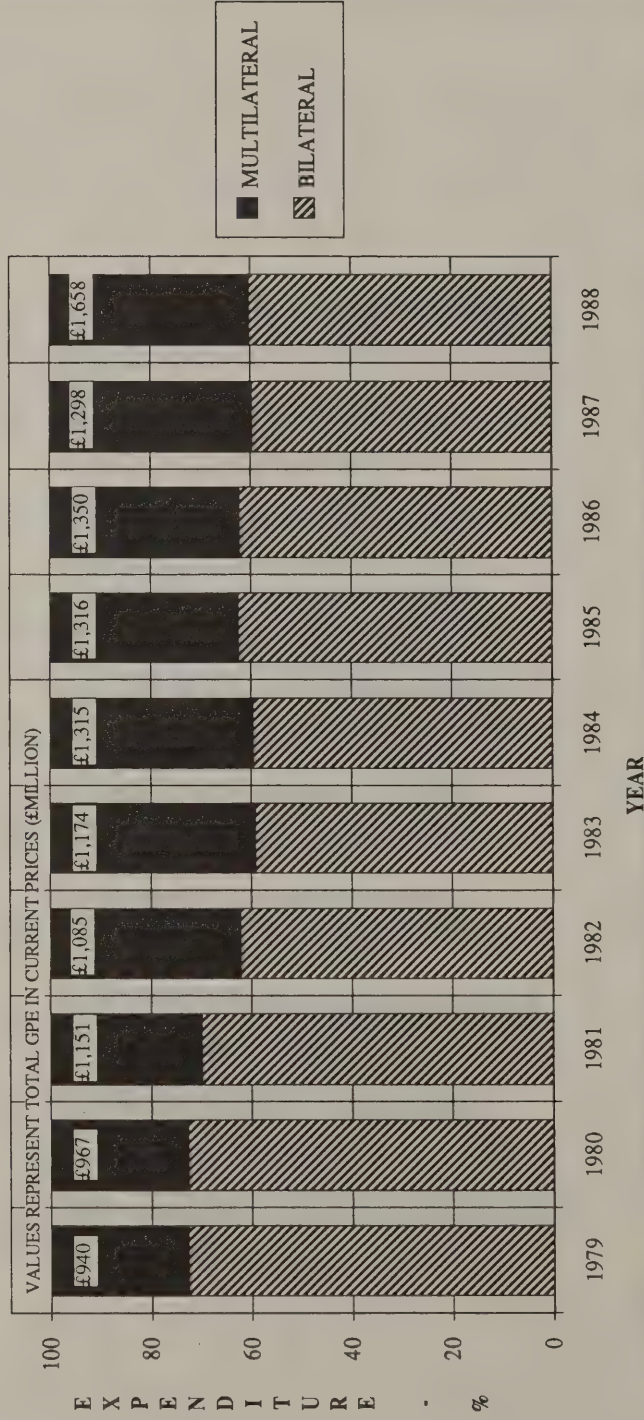
¹ The word "project" is frequently used in the aid community, and in this report, in the more general sense of "an aid-funded activity", as well as in the specific sense given here.

² *British Overseas Aid 1987—Annual Review*, ODA, pages 11 and 12.

FIG. 1**GROSS PUBLIC EXPENDITURE ON OVERSEAS AID (1979-1988)**

Derived from "British Aid Statistics", ODA

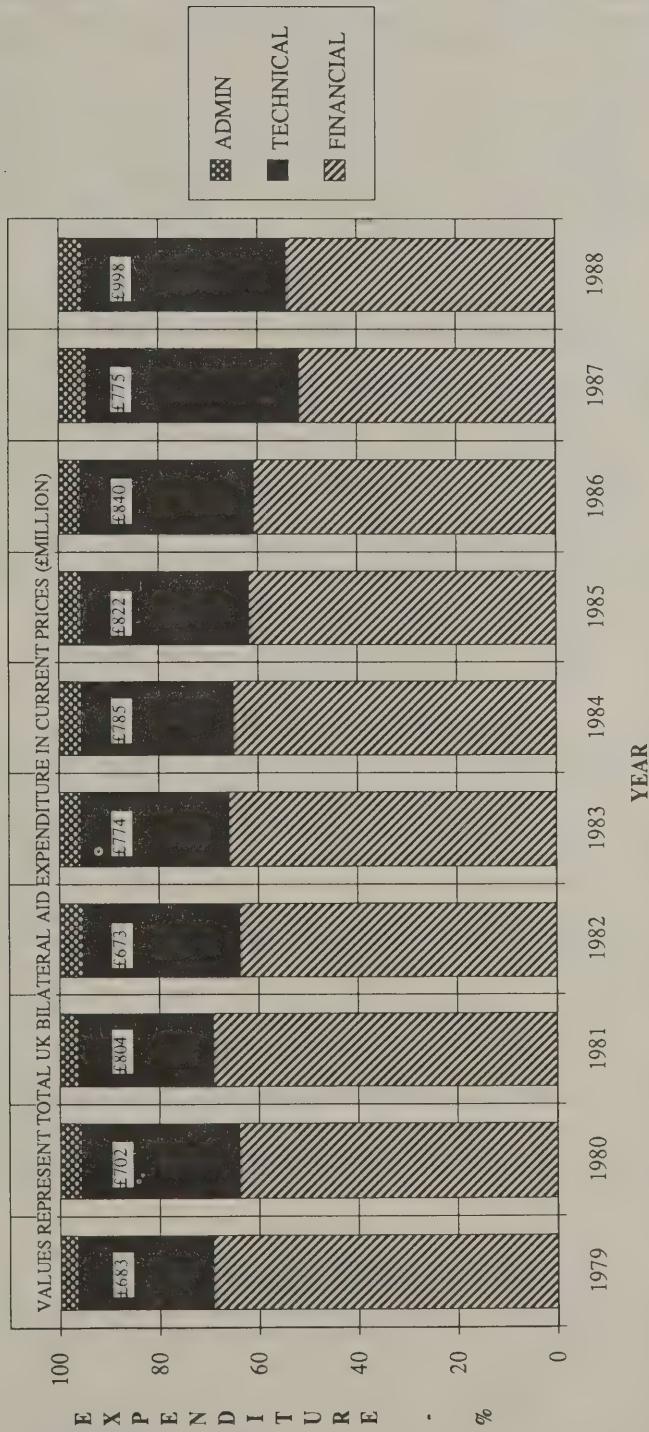
FIG. 2 GROSS PUBLIC EXPENDITURE ON BILATERAL AND MULTILATERAL AID



Derived from "British Aid Statistics", ODA.

FIG. 3

BREAKDOWN OF UK BILATERAL AID BY ACTIVITY



Derived from "British Aid Statistics", ODA.

2.6 ODA maintain their own scientific institution, the Overseas Development Natural Resources Institute¹, with a mandate—

“to promote sustainable development of the natural resources sector in developing countries through—assessing of land and water projects; pilot-scale development projects; applied research in the fields of pest control and of crop and animal processing, storage and marketing; and assessment of the environmental consequences of development projects” (P 4).

2.7 ODA also “contributes to the recurrent costs of over 30 centres in Britain which give scientific and technical help to the developing countries”². Some of these are scientific units administered by other Government departments (for example the Overseas Division of the Building Research Establishment, administered by the Department of the Environment), others are parts of universities (for example the Centre for Tropical Veterinary Medicine at the University of Edinburgh) or Research Councils (for example the Agricultural and Food Research Council’s Institute of Agricultural Engineering).

2.8 ODA also contribute to international research relevant to developing countries, in particular through the Consultative Group on International Agricultural Research.

2.9 The British Council is “an independent, non-political organisation” which promotes Britain abroad (P 40). A number of its activities are of relevance to S&T aid, in particular “helping people to study, train or make professional contacts in Britain, and enabling British specialists to teach, advise or establish joint projects abroad” and “promoting British education, science and technology” (P 40). The Council runs its own programmes, funded partly by government grant and partly by its own earnings, and also runs programmes on an agency basis for ODA. The Committee were pleased to discover how much practical development work the Council undertakes. For example fifty per cent of the Council’s annual turnover is now spent on government programmes such as the Technical Co-operation Training Programme (P 40) and in 1987-88 the Council “disbursed more than £5 million on purely science and technology related projects on behalf of the ODA” (P 43). The popular image of an organisation concerned with culture gives only a partial picture of the modern British Council.

2.10 The British Council has a network of offices in developing countries, run by a number of London-appointed staff supported by locally-engaged staff, many of whom are science-qualified (P 41, Q 109).

2.11 The Commonwealth Development Corporation (CDC) is funded by loans from the aid programme. With these funds it assists developing countries in the development of their economies “by making loans available at competitive rates for projects in both the private and the public sector; by taking equity capital in projects; and by lending to financial intermediaries” (P 84). Although CDC is governed in its investment policy by the requirement that its combined projects must, over the years, show a financial return, it normally undertakes investments which private capital would be unwilling to make on its own. In doing so it takes active steps to promote the transfer of technology and skills.

2.12 The Research Councils and universities play a part in S&T aid in a number of ways. They often do research relevant to the problems of developing countries; they train students from developing countries, whether fee-paying or supported by the aid programme; through collaboration, correspondence and exchanges of visits they help strengthen the S&T institutions of developing countries; they help maintain the pool of expertise from which aid workers and consultants can be drawn³.

2.13 Many Non-Governmental Organisations (NGOs) undertake long-term development projects, in addition to their more widely-publicised disaster relief activities, and these often involve a strong element of S&T aid including the provision of skilled personnel. Under the Joint Funding Scheme the ODA provides half the costs of agreed long-term activities. Grants totalling about £4.2 million were made in 1987 to four major NGOs—OXFAM, the Save the Children Fund, Christian Aid and the Catholic Fund for Overseas Development. A further £2.3 million was

¹ The Institute was formed on 1st September 1987 by the amalgamation of the Tropical Development and Research Institute and the Land Research Development Centre. The Institute is located in Chatham.

² *Report on Research and Development 1987/88*, ODA, page 1.

³ Evidence from the University of Birmingham (P 292) indicates the scale of the input which some universities make to S&T aid.

granted to 50 other smaller NGOs, including WaterAid which works in nine countries in Africa and Asia to provide a safe water supply and sanitation (P 128). ODA also gives substantial support to the volunteer-sending agencies, including Voluntary Service Overseas and British Executive Service Overseas¹.

2.14 The Intermediate Technology Development Group Limited (ITDG) is an independent, charitable agency. It carries out long term programmes directed at "the alleviation of poverty in rural areas of developing countries by promoting the use of productive technologies which poor people can afford to purchase, operate and maintain for themselves" (P 137). ODA enact their commitment to the implementation of appropriate technology principally through support of ITDG. In the financial year 1987/88 "ITDG's total income was £3.6 million, of which 45 per cent was provided by the ODA" (Q 674). ODA's annual grant to ITDG has since risen to £2.1 million (P 255).

2.15 A number of other bodies in the United Kingdom contribute to S&T aid to a greater or lesser degree. The Royal Society runs Fellowship programmes and makes contributions to the International Council of Scientific Unions and its constituent parts including the Committee on Science and Technology in Developing Countries (PP 100,101). The Meteorological Office provides training, facilities and consultancy to the meteorological services of developing countries, if financed by a sponsor (P 240). The Royal Navy Hydrographic Department provides personnel to assist with the development of local hydrographic capabilities, training and hydrographic surveys, again on a cost-recovery basis (P 243). The Overseas Surveys Directorate of Ordnance Survey provides technical advice to the ODA, carries out survey and mapping projects funded by ODA and trains staff from developing countries if financed by a sponsor (P 117). The BBC's World Service broadcasts to developing countries a variety of programmes on scientific and technical themes, as well as English language teaching (P 204).

Subject Areas

2.16 Many different scientific and technological disciplines are relevant to aid, and most of them are represented in the British programme.

2.17 Not surprisingly, given that agriculture is still the largest producer and employer in developing economies, Renewable Natural Resources are the target of much of the S&T aid provided by the United Kingdom. Crops, livestock, forestry and fisheries are all covered. Both research and practical assistance deal with disease and resistance in plants and animals, production systems, irrigation, use of fertiliser and other inputs. Post-harvest work includes processing, storage and transport of products.

2.18 Health and population is another important sector of activity. Research and practical assistance are aimed at maternity and child care, primary health care, tropical diseases, family planning, AIDS.

2.19 Other sectors which S&T aid supports include transport, communications, energy, mining, manufacturing industry, construction, planning.

2.20 ODA's bilateral aid expenditure by sector in 1988 was as follows²:

	£ million
Renewable natural resources	61.0
Mining	11.1
Manufacturing	46.9
Energy	46.1
Construction	0.6
Trade, hotels and tourism	0.5
Transport and communications	48.5
Financial services	1.5
Social and community services	83.8

ODA "do not aim to match the scale or pattern of ... funding in research in a subject-area and the funding of that area under capital aid" (P 260).

¹ *British Overseas Aid 1987*, ODA, pages 37 & 38.

² *British Aid Statistics 1984-1988*, ODA, Table 26.

The Recipients of Aid

2.21 There is no single generally-accepted definition of the phrase “developing countries” or, as they are sometimes known, “less-developed countries”. Most of the major international organisations, including the International Monetary Fund and the United Nations, have their own lists of developing countries. The summary of the list produced by the Development Assistance Committee of the OECD is as follows:

“All countries in Africa except South Africa, in America except the United States and Canada, in Asia except Japan, in Oceania except Australia and New Zealand. In Europe the list comprises Cyprus, Gibraltar, Greece, Malta, Portugal, Turkey and Yugoslavia.”

2.22 Assistance under the British aid programme is given to a wide range of countries. In 1987 the United Kingdom provided bilateral aid to over 120 countries. Fifty per cent of the bilateral aid allocated by country went to 10 major recipients: Bangladesh, Ghana, India, Kenya, Malawi, Mozambique, Pakistan, Sudan, Tanzania, Zambia¹. India is the recipient of the largest single slice of bilateral aid². In terms of aid *per capita*, however, India received only 13p in 1988, compared with over £3,000 for St. Helena and dependencies, and over £600 each for Tuvalu and the Turks and Caicos Islands³. Developing countries also benefit from aid from the multilateral agencies to which the United Kingdom contributes.

2.23 Government policy is for the aid programme to be “concentrated on the poorest countries where it can make a particularly valuable contribution to development”⁴. 67.2 per cent of United Kingdom bilateral aid in 1987 went to countries with an average annual *per capita* income of \$500 or less. A further 14.3 per cent went to countries with an average annual *per capita* income of from \$501 to \$800⁵. The DAC, reviewing United Kingdom aid policies in 1986, welcomed “the relatively large concentration of aid on the poorest countries”. However the DAC has noted that “most of the poorest people live in countries which do not meet the United Nations criteria for ‘least developed’”, and that concentration of aid on the poorest countries may not therefore benefit the poorest people⁶. It is also debatable whether aid should concentrate on those whose need is greatest or those who will use it most productively. The two conditions do not necessarily coincide.

2.24 The large number of countries which receive aid from the United Kingdom means that the aid programme must be very flexible. Circumstances and needs vary greatly from one developing country to another, and an activity or method appropriate to one will not necessarily be of value elsewhere. Moreover circumstances and priorities change. Decisions about S&T aid are often therefore a matter of reaching an appropriate balance between a number of competing demands: between countries; between sectors; between the interests of recipients and the interests of suppliers of goods and services; between areas of greatest need and areas of greatest potential impact. Such decisions are never easy, and the proper balance will always be a matter for debate.

2.25 Bilateral aid is given on a government-to-government basis, and this of course affects the purposes and the way in which aid is used⁷. Expenditure on an aid project is almost always a matter for negotiation and agreement between the donor government and the recipient government. The use of multilateral aid, similarly, is agreed between the donor agency and the recipient government. NGOs on the other hand are usually able to act in direct contact with communities at “grassroots” level.

Effect of Local Circumstances

2.26 Many local circumstances affect the effectiveness and appropriateness of S&T aid, and a good programme must obviously take account of them. Professor A H Bunting of the University of Reading said “Science and technology do not of themselves promote development...unless the development policy of government is sound and determined, and the actions it proposes are feasible and economically as well as socially sustainable, there will be no market for the products of science and technology” (P 217). ODA said that “the developing countries’ policy framework

¹ *The Government's Expenditure Plans 1989-90 to 1991-92*, Chapter 2, Cm 602.

² *British Overseas Aid 1987—Annual Review*, ODA, page 24.

³ *British Aid Statistics 1984-88*, ODA, Table 25.

⁴ *The Government's Expenditure Plans 1989-90 to 1991-92*, Chapter 2, Cm 602.

⁵ *British Overseas Aid 1987—Annual Review*, ODA, page 15.

⁶ *Development Co-operation, 1988 Report*, OECD, page 18.

⁷ See paragraphs 3.14 and 3.15 below.

is of key importance if help given by donors to projects or institutions is going to succeed" (Q 41).

2.27 There are many factors other than S&T inputs which are necessary for successful development. For example, appropriate land ownership and access to banking facilities are relevant to the uptake of new agricultural techniques. Social and cultural attitudes affect the response to family planning provision. The adequacy of local administration and the absence of widespread corrupt practices are also important. All these conditions must be considered in both formulating and evaluating S&T aid.

Multilateral Aid

2.28 In 1987 42 per cent (£540 million) of the United Kingdom aid programme was channelled through multilateral agencies. Almost half of that was contributed to the European Community (EC) (£239 million in 1987)¹. EC aid has a very high grant (as opposed to loan) content: 97 per cent of EC aid was given in grant form in 1986. Funds provide food aid (24 per cent in 1986) and support for development projects (69 per cent in 1986). Emphasis is increasingly being placed on agricultural and rural development. EC aid goes to a large number of developing countries throughout the world, though with a concentration on sub-Saharan Africa².

2.29 The United Kingdom's next largest disbursement of multilateral aid is to the International Bank for Reconstruction and Development (IBRD/World Bank) (£20 million in 1987) and its affiliate the International Development Association (IDA) (£133 million in 1987). The IBRD makes loans on near-commercial terms, to secure the economic growth of developing countries. The IDA lends on softer terms, primarily to countries with an annual average *per capita* income of less than \$410. The World Bank group has assumed an important role in appraising development programmes and organising consultative groups among donors.

2.30 The United Kingdom also makes substantial contributions to a number of regional development banks and funds; to the International Fund for Agricultural Development; to United Nations agencies such as the UN Development Programme, the Food and Agriculture Organisation and the UN Industrial Development Organisation; and to various Commonwealth programmes including the Commonwealth Fund for Technical Co-operation.

2.31 The amounts of concessional flows to developing countries from the multilateral agencies in 1987 were as follows³:

	<i>\$ million</i>
International Development Association	3,530
International Bank for Reconstruction and Development (World Bank)	—
Inter-American Development Bank	121
African Development Fund	374
Asian Development Fund	514
International Fund for Agricultural Development	—
World Food Programme	720
UN Development Programme	786
UN High Commission for Refugees	—
UN Relief and Works Agency	207
UN Children's Fund	364
UN Transitional Assistance Group for Namibia	314
Fund for Population Activities	106
Other UN	426
Other Institutions	(36)
European Economic Community	1,747
Arab Funds	(106)
Total	(10,029)

¹ *British Overseas Aid 1987—Annual Review*, ODA, page 32.

² *Official Development Assistance from the European Community and its Member States*, DE 57, May 1988, Commission of the European Communities, pages 16–19.

³ *Development Co-operation*, 1988 Report, OECD, page 190. Figures in brackets are estimated. — indicates figures unavailable.

Comparison with Other Bilateral Donors

2.32 In those S&T aid inputs which can be easily defined, and for which statistics are available, it is possible to compare the scale of United Kingdom effort with that of other bilateral donors. In 1987 the percentage of United Kingdom official development assistance (oda) spent on technical assistance, students and trainees, experts and volunteers and research was 64.5 per cent compared with 31.7 per cent for the USA, 56.7 per cent for Germany, 92.1 per cent for France, 24.9 per cent for Japan, 25.5 per cent for Canada¹. However the actual amounts spent on technical co-operation are small compared with those spent by similar countries such as France and West Germany, and are not growing as theirs are. Trends in international expenditure on technical co-operation, from 1980 to 1987, are shown in Figure 4.

2.33 In overall terms, the level of the United Kingdom's oda is low. Indeed throughout the 1980's the level has been lower in real terms than it was in 1979 (see Figure 1, page 11). In 1986-87 the United Kingdom ranked 15th among DAC members in terms of oda as a percentage of gross national product, at 0.29 per cent. In the same year the United Kingdom ranked joint 13th among DAC members in terms of aid appropriations as a percentage of central government budget expenditures, at 1.1 per cent².

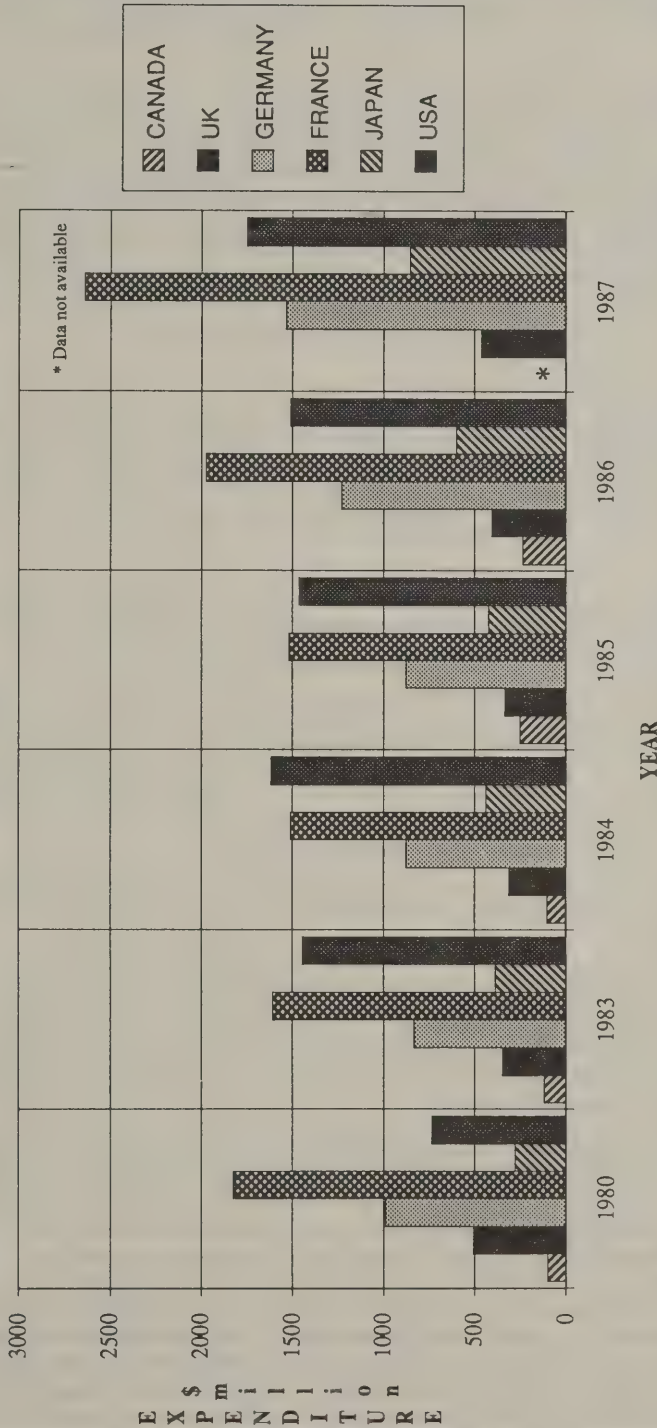
2.34 The Committee are not satisfied that the level of the United Kingdom's aid expenditure is adequate. They urge Her Majesty's Government to move as quickly as practicable towards the OECD target for oda of 0.7 per cent of gross national product, already exceeded by Denmark, the Netherlands, Norway and Sweden.

¹ *Development Co-operation—1988 Report*, OECD, pages 192–193.

² *ibid.*, pages 172–173.

FIG. 4

INTERNATIONAL EXPENDITURE ON TECHNICAL CO-OPERATION



Derived from "Development Co-operation", Table 23, 1988 Report, OECD.

PART 3 THE NEEDS OF DEVELOPING COUNTRIES

Technical Change

3.1 The process of technical change—the process by which S&T inputs lead to the improved use of resources—is little understood. But to assess the effectiveness of S&T aid it is necessary to explore the direct mechanisms by which it contributes to development.

3.2 The evidence of progress in industrialised countries suggests that much improvement in production efficiency arises from incremental technical change, and not only from the application of spectacular “one off” inventions. Furthermore the ability to make such incremental technical changes in the future depends largely on having made similar changes in the past—that elusive concept of “experience”. The policies and investments needed to foster technical change are widespread and all-embracing (so-called “implicit” science and technology policies), working in combination with those activities more explicitly related to science and technology. Increasingly there is justification for the view that the performance of modern economies (particularly export performance) is determined as much by the quality of products and the technological capacity to produce them, as by the more traditional economic arguments based on the relative cost of the factors of production¹.

3.3 Historical evidence reinforces this picture of complexity. In the development of the USA, United Kingdom and Japan the great sources of innovation have frequently come from within the productive units of farms and factories. Even today the bulk of scientists and engineers involved with technical change in these countries work in productive enterprises. Yet S&T aid, particularly in Africa, targets its efforts on formal educational and research institutions².

3.4 The review of the effectiveness of multilateral aid carried out by Professor Cassen and others³ noted the “striking weakness in the intellectual underpinnings of institution building, human development, and associated Technical Cooperation compared with the theoretical and quantitative tools used to plan physical investment” (page 217).

3.5 Most witnesses emphasised intermediate outputs of S&T aid (such as research or scientific manpower) rather than the ultimate outputs associated with development (such as improved standards of health, or increased availability of clean water). This difficulty in describing the relationship between inputs and outputs limits the extent to which S&T aid can be evaluated and to which effective aid can be distinguished from the ineffective. Such a limitation is significant since the wrong technology can have disastrous effects.

3.6 However ODA provided a useful insight into the process of technical change. ODA recognised that—

“the ultimate benefits for UK-funded research will only be realised when natural resource users in developing countries adopt the new technologies derived directly or indirectly from that research...the benefits of any research will only be captured by developing countries if three conditions hold: first, that the output of the research (knowledge or technology) is effectively disseminated to users in developing countries (including intermediate research institutions); second that there exist adequate indigenous research and extension programmes to receive, adapt, test and disseminate internally that knowledge or technology; and third that the resultant technology is accessible to...users in a manner consistent with their objectives” (P 7).

Although made in relation to research in renewable natural resources, the Committee consider that these comments could be applied equally to other areas of activity.

3.7 Technical change involves a chain of action, each link of which is vital. If any link is missing, the effectiveness of the whole will be jeopardised. The links include such activities as needs assessment; option search; research and development; adaptation of technology; marketing, dissemination and extension services; maintenance and improvement of equipment and processes.

¹ Freeman, C. and Lundvall, B-A. (1988), (Ed.), *Small Countries Facing the Technological Revolution*, Frances Pinter, London.

² See R. Martin Bell, *The Development of Scientific and Technological Institutions in Africa: Some Past Patterns and Future Needs*, Science Policy Research Unit, University of Sussex, 1988.

³ Robert Cassen and Associates, *Does Aid Work?*, Clarendon, 1986.

3.8 The Committee see great advantage in agencies involved in S&T aid acquiring a clearer understanding of the part played by each of these activities, and of their interdependence. They recommend that, to achieve more effective use of science and technology in the aid programme, ODA should define the processes by which S&T aid might be expected to contribute to the ultimate, as well as the intermediate, objectives of development. They should ensure that adequate support is provided to each part of the process of change.

Identification of Needs

3.9 Most agencies which fund or provide S&T aid undertake some form of systematic assessment of needs. This can be a complex process and it was often unclear from the evidence just what weight was given to the views of the recipients. ODA explained that little can take place without a formal request from the developing country (Q 10), but in practice it is widely recognised that the process of identifying S&T aid is one of negotiation ("dialogue") between donor and recipient. The idea that donors "ventriloquise" requests from recipients is familiar in development jargon, and was acknowledged by witnesses (PP 215, 284). The ODA were particularly frank in admitting that ideas for S&T aid do not necessarily originate in the recipient country (QQ 9–12).

3.10 The Minister said that the account given by ODA to the wishes of recipients would depend on the level of their knowledge of their own local environment. But she assured the Committee that where such knowledge existed it was given full weight. The identification of aid needs "is not a one-way process; it must be a two-way process" (Q 818). In India the Committee found that in the case of collaborative links between scientific institutions, needs and opportunities were almost always identified by the individuals concerned. However this represents a level of involvement which is often not apparent in the establishment of more basic developmental activities.

3.11 Most witnesses were anxious to ensure, as far as possible, that their efforts in S&T aid were directed to meeting real needs. Hydraulics Research attempt to ensure that local needs are being met by requiring an input from a local institution, usually in the form of manpower for field work (P 232) and a similar pattern is adopted by other agencies also (QQ 266–271). Both WaterAid (P 129) and ITDG (P 139, Q 626) emphasised the importance of local co-operation and involvement in identifying needs as well as implementing STA activities. The British Council were confident that their "contacts at local level will be a way of funnelling a local dimension into the policy-making process" (Q 98).

3.12 Some witnesses suggested that ODA should do more to "sell" particular British skills (PP 277–8). Others, such as the Organisation of Eastern Caribbean States, thought that commercial interests already tend to dominate aid and advocated an approach more responsive to the expressed needs of recipients (P 252).

3.13 Witnesses recognised that some developing countries do not have the capability to identify their needs and formulate proposals for assistance, and that this was an area that needed strengthening (PP 138, 281). A number of witnesses thought this could be achieved by greater support to strengthen developing countries' capability for the management of science and technology (PP 73, 168, 171, 219, 228, 274).

3.14 Most official aid is negotiated between governments and this has a number of consequences. First, the needs expressed by developing countries reflect the local social structure. Where needs are identified by urban-based government officials, they may not reflect the needs of the end users of technology, particularly if they are industrial producers or rural people. Indeed it was suggested that the low status attached to farming in many countries leads to an under-emphasis by developing country governments of what is the largest sector of many developing economies (P 287). The AFRC Institute of Engineering Research suggested that "research planners in developing countries also need assistance in ensuring that more emphasis is placed on harmonising the goals of researchers with the needs of the end user" (P 171).

3.15 A second consequence of government to government aid is that it encourages assistance to the state sector. The Centre for Tropical Veterinary Medicine suggested that present aid programmes favour training of third world professionals from the public sector, and that more effort should be directed to those in the private sector (P 218). It was even suggested that success is frequently achieved only by circumventing the local bureaucracy (P 171). **However, as**

government to government aid will inevitably continue to be the main form of assistance, support for improved public administration is desirable where practicable. Higher standards of administration in recipient countries could increase the overall effectiveness of aid.

3.16 The Committee received little direct evidence from recipients of S&T aid about their needs. However, it is apparent that the needs for S&T aid in all developing countries are immense. The scientific and technological infrastructure in various parts of the world, but particularly in Africa, is under threat or in decline (QQ 16–19, 777) with research establishments and educational systems starved of resources.

3.17 The Committee consider that, even where there are adequate procedures for donors to assess the needs of developing countries for S&T aid, the process will benefit from local people identifying their own needs and formulating their own proposals. United Kingdom aid agencies should at all times seek out the preferences of recipients, who will often be better acquainted with local conditions and constraints, and better able to judge what activities will be appropriate and effective. However since developing countries cannot be familiar with all the types of assistance which the United Kingdom can offer, it is clearly difficult for them to initiate the application of techniques outside the range of local experience. As the pace of scientific change quickens, for example in biotechnology, this is even more likely to be the case. Suggestions and guidance from donors are therefore inevitably important.

3.18 The Committee consider that S&T aid from the United Kingdom achieves a broadly acceptable balance between responding to the needs expressed by recipients, and guiding and influencing activity. They welcome the flexible approach of ODA in which initial plans are reviewed and modified in the light of experience and changing circumstances (Q 42).

Population Activities

3.19 The rapid pace of population growth in developing countries and its “destructive effect on economic development and the environment” was clearly demonstrated in evidence from the All-Party Parliamentary Group on Population and Development (P 198). Population pressures affect every aspect of life including maternal and child health, land and food provision, education and employment.

3.20 A reduction in population growth can be encouraged by direct measures of family planning or indirectly by improving the education and status of women, to enable them to make their own child spacing choices, and by reducing child mortality, so that families can be more confident that the children they have will survive.

3.21 Aid-funded population activities are complicated by the fact that this is still a very sensitive issue, both politically and socially. It is often easier therefore for such activities to be undertaken by multilateral agencies and non-governmental organisations (Q 43, P 199).

3.22 ODA support research in a number of areas related to population (P 14). However most of their contribution to the field is through support of the WHO Human Reproduction programme, to which the United Kingdom contributed £2.2 million in 1988-89 (P 11). Grants are also made to the UN Population Fund and the International Planned Parenthood Federation. ODA also support the work of two British NGOs, Marie Stopes International and Population Concern (P 199).

3.23 The Committee strongly support ODA’s commitment to population activities. All opportunities to undertake such activities, as part of the bilateral aid programme, should be seized. Her Majesty’s Government should seek increased action on the issue in international fora wherever possible. Support for multilateral and non-governmental initiatives should be increased.

PART 4 SCIENTIFIC AND TECHNICAL INFRASTRUCTURE

S&T Infrastructure in Developing Countries

4.1 All donors now attach great importance to the sustainability of aid-funded development. As Joseph C Wheeler, Chairman of the Development Assistance Committee (DAC) of the OECD, has said, "the purpose of aid is to help countries achieve self-sustaining growth. The efficiency of any individual aid input must be measured in large part in terms of whether or not, when the donor leaves, the project or institution continues to make a contribution to a country's economic development"¹.

4.2 The importance to such sustainability of a strong local S&T infrastructure in developing countries in both the public and private sectors cannot be overestimated. Such infrastructure is necessary for the effective application of science and technology to development as well as for identification of opportunities (QQ 42, 679, PP 73, 231, 252). It is required not only by research laboratories and educational institutions in the state sector, but also "on farms and in factories".

4.3 However there seems little doubt that this infrastructure is deteriorating in a number of developing countries, especially in Africa. OXFAM and Christian Aid noted that the shortage of resources in developing countries is increasingly hampering their work (Q 728).

4.4 The British Council underlined the importance of creating "critical mass scientific communities" in developing countries, and suggested that "such issues are seldom addressed in most aid programmes with their emphasis on mission orientated projects" (P 52).

4.5 Institution building activities which the aid programme currently supports include academic links between institutions in the United Kingdom and in developing countries and Technical Co-operation projects in developing country institutions which, as well as achieving a specific developmental aim, permit interaction between scientists of different countries. The British Association for the Advancement of Science emphasised the need for scientists in developing countries to have "access to the scientific literature, and opportunities for contact with scientists in other countries... Science is an international activity, and scientists from developing countries must have access to it even though this can be expensive" (P 206).

4.6 The Vice-Chancellor of Keele University spoke of academic links with developing countries as a "very cost effective means of technology transfer" (P 294). The value of academic links and collaborative research programmes was also stressed by the Centre for Tropical Veterinary Medicine (P 218) and by the Institute of Biology (P 235). ODA said that "links between specific British and overseas institutions will continue to be encouraged" as part of an effort "to increase the extent to which local researchers and institutions can be associated with the science and technology research work we finance" (P 261).

4.7 The Committee consider that "institution building"—contributing to the strengthening and support of a local S&T infrastructure in a developing country—is one of the most worthwhile ways in which S&T aid can be applied. Only with such an infrastructure, and with improved management of science and technology, can a developing country hope to identify its problems and find solutions. Even where technology is available from elsewhere appropriate decisions must be taken about its adaptation and application. The Science Advisory Council to the Prime Minister of India has said "even to buy advanced technology intelligently, we must have done some work on it"². Institution building can ultimately lessen dependence on imported methods, ideas and expertise. It will also help to stem the "brain drain" of talented and qualified personnel from developing countries, by providing a stimulating and satisfying environment in which they can work.

4.8 Not only is there a pressing need for support for S&T infrastructure, but this is an area in which the United Kingdom is well-placed to meet the need. The science base in the United Kingdom is world-renowned and, partly because of our colonial past, many university and Research Council units have long had informal connections with their counterparts overseas. The Committee consider that the developmental benefit, and goodwill to the United Kingdom which a strengthening and multiplication of those links could achieve, would be out of all proportion to the low costs

¹ *Development Co-operation, 1988 Report*. OECD, page 14.

² *An Approach to a Perspective Plan for 2001 AD: Role of Science and Technology*, November 1988, New Delhi.

incurred. They therefore strongly recommend that support for and encouragement of S&T institutions in developing countries should be accorded higher priority in the United Kingdom aid programme.

4.9 Where sophisticated or expensive facilities or equipment are required, it may be impractical to initiate "institution building" on a national basis. In such cases, and where local circumstances permit, the establishment of scientific and technical facilities on a regional (ie multi-national) basis should be considered. The Commonwealth Science Council cited as an example collaboration by Caribbean nations in relation to oceanographic resources (P 73). Multilateral, rather than government-to-government, aid will often be more suitable for funding such regional activity. Emphasis on co-ordination of donors could be matched by co-ordination of recipients.

Education and Training

4.10 The contribution to development made by general scientific and technical education was clearly explained by the British Association for the Advancement of Science. "Some understanding of science must permeate through the whole of the society. Without adequate numbers of competent technicians, equipment soon falls idle. Without a basic level of understanding amongst the general population, even the simplest technologies can be worthless" (P 206). **The Committee share this view. Investment in local technical capabilities is essential to achieve maximum benefits from any capital investment.**

4.11 The Committee received evidence of a shift in the demand from developing countries for education and training in the United Kingdom, away from undergraduate training towards training of postgraduates (QQ 129, 386) as well as a wish for more practical training (Q 147). These changes will affect the types of training which aid funds should make available. However undergraduate training in the United Kingdom will remain important for students from countries where local university provision is inadequate.

4.12 English language training and English as a medium of other instruction are strongly in demand. This was apparent in each of the countries which the Committee visited and in the evidence from Zimbabwe and Zambia (P 295). **The Committee strongly support a continuation of British effort in this area, which is obviously one in which the United Kingdom is in a position of comparative advantage as a donor. British Council management and techniques for English language teaching are well-developed and effective, and should be expanded where possible. The impact of the BBC World Service is also substantial, impressive and cost-effective. It should be strongly supported.**

4.13 There was no general agreement among witnesses as to the relative advantages of training people in the United Kingdom or in their own country. The British Council argued that it was "constantly balancing the factors" (Q 148). They cited an example in Egypt where in order to develop a training institute for the electric power sector in the country, "it has proved to be more convenient to bring [the teaching staff and instructors] to the United Kingdom in order to train them on simulators and to see the actual operation of power stations and the training situation in this country" (Q 150). ODA stated the obvious, in that if they provided funds for more students to be trained in their own country "fewer people might come to this country for training....[and] institutions and the United Kingdom economy in general might lose business" (P 23).

4.14 The Centre for Tropical Veterinary Medicine argued strongly for training professional people in "out-of-country courses, where third world nationals can think objectively about problems of their own countries and discuss them with professionals from other developing countries in a secure and neutral environment" (P 218).

4.15 The Commonwealth Science Council took the opposite view and favoured training in the recipient's own country. They argued that training in a developed country tends to encourage talent to emigrate permanently (P 73). The Royal Institution of Chartered Surveyors also thought that "more emphasis should be put into in-country training" (P 281) and the Institute of Biology said that "training...is often best conducted in the developing country where the constraints to action are more readily apparent" (P 235).

4.16 Training in developing countries could be very expensive yet a training centre in Africa has been the route chosen by BP (P 210). The relative merits of the location of training depend to some extent on the time scale envisaged: local training is likely to be cost-effective only if the

appropriate infrastructure can be built up over the long-term and can be matched by a high through-put of trainees.

4.17 Certainly it might be expected that the poorest developing countries have the greatest need for United Kingdom training, for they are least likely to have well-developed institutions of their own. It has been just these countries that have been most affected by the raising of British university fees and charges for overseas students. **The Committee recommend that additional assistance with British university fees and charges should be introduced for students from the poorest developing countries, perhaps by way of an enhanced scholarship scheme.**

4.18 The Committee consider that training in the United Kingdom or in-country are appropriate to different circumstances. For a scientific researcher seeking familiarity with sophisticated equipment, training in the United Kingdom will be beneficial and indeed, those whom the Committee met on their overseas visits who had undergone education or training in the United Kingdom—principally academics and scientific researchers—spoke warmly of the benefits they had derived from the experience. However for more immediate developmental value—for example training of primary health care workers—in-country facilities will be appropriate and cost-effective. The Committee recommend that more explicit consideration should be given, case by case, to the relative costs and benefits of training in-country and training in the United Kingdom and to the time-scales over which benefits are expected to arise. The likely developmental value of different levels of training should also be more closely considered. Training is needed by workers in productive enterprises, and not only by government-funded researchers and academics. This type of training would be particularly appropriate for provision in-country.

4.19 In the countries which they visited, the Committee found that the special relationship which has existed between the United Kingdom and nationals of those countries is not being nurtured or maintained. Among many people over 40 there is a strong feeling of friendship towards and interest in the United Kingdom. Many have spent time in British universities, are familiar with British ways and methods, and have maintained links with the United Kingdom over many years. The value to the United Kingdom of such links—in terms both of goodwill and of commercial opportunities—is enormous. **The Committee greatly regret that such links are not being systematically created with younger generations.** Although the situation has improved recently, the raising of university fees for overseas students appears to have caused at least a temporary reduction in the numbers of developing country nationals coming to the United Kingdom to study. In India the Committee heard that large numbers of young Indians now go to the USA instead of the United Kingdom, because scholarships are more freely available there.

4.20 The Committee therefore recommend that it would be in the United Kingdom's interest, no less than that of the recipient countries, for additional funds to be allocated for the provision of scholarships for university students from developing countries. In view of the potential benefits to the United Kingdom, it would be appropriate for additional funds for such scholarships to be provided not only from aid funds but also from Foreign and Commonwealth Office or Department of Trade and Industry budgets.

Support Services

4.21 Those whom the Committee met on their overseas visits identified a need for continued contact with and support for individuals after they had completed aid-funded training. Such support was expected to increase the effectiveness of training and to enhance the commercial benefits to the United Kingdom. The types of support envisaged would mostly involve recurrent expenditure, which is difficult for developing countries to finance, but to which aid agencies are often unable or unwilling to commit themselves.

4.22 A most striking problem was the scarcity of books and up-to-date journals. The Committee observed an acute shortage during their visit to Ghana and Nigeria and evidence from the British Council suggests that the problem is widespread. The Director of the British Council's Books Promotion Department said that "there is undoubtedly a very serious shortage of books and journals in most developing countries, a shortage that may be described...as a books famine" (P 207). The need for medical and scientific text books is particularly acute (QQ 83, 163, 784).

4.23 The lack of recurrent expenditure for the maintenance of scientific equipment and the difficulty in obtaining spare parts was also observed by the Committee during their visit to West Africa. The Royal Society noted that "very frequently sophisticated equipment ends up wasted

in a developing country for want of a washer or something" (Q 389) and recommended that provision should be made "in government funded scientific aid projects for the supply in subsequent years of replacement parts for scientific and other equipment, as well as training in maintenance of that equipment" (P 102).

4.24 The American Association for the Advancement of Science has taken up this theme in its recent work and has commissioned a study to evaluate the feasibility of providing a comprehensive and cost-effective approach to the maintenance and repair of research equipment in developing countries. They believe that the problem occurs in all regions of the developing world, including China¹.

4.25 The effectiveness of British trained students is said to be hampered by the lack of equipment and other resources available for them to work with on their return. The AFRC argued that "so much of the funds spent on training are wasted, unless resources are made available for the returning students to operate effectively" (P 167). Evidence from the Ministry of Higher Education, Science and Technology in Zambia said that the "scarcity of resources with which to acquire...scientific requisites such as literature, laboratory equipment and reagents" was a major constraint to S&T development in Zambia. Although S&T aid from the United Kingdom had been useful, greater results would be achieved if there was "a balance between provision of manpower and provision of equipment and books" (P 295).

4.26 It is not only the lack of equipment that reduces researchers' efficiency. They are frequently isolated professionally. A major objective of the AAAS is "Linking mainstream scientific and engineering societies in the United States with their counterparts in developing countries"². The Royal Society identified a similar need and recommended aid for academies of science in developing countries to provide a focus for scientific development (P 102).

4.27 It was suggested that electronic communication and information systems will offer opportunities for the future. The AAAS suggest that "researchers in Africa need to overcome their relative isolation and employ new methods for communicating with each other and their colleagues in industrialised countries"³. The British Council also saw a need for networks and electronic information systems (P 44).

4.28 The Committee regret that the United Kingdom does not do more to provide continued support to individuals who have undertaken a course of study or training funded by the aid programme. In order to work as productively and effectively as possible on returning home, such individuals need contact with other scientists, and access to adequate equipment and information. Without such conditions, they will be more likely to seek posts in developed countries. The Committee therefore recommend that a small proportion of the funds allocated for education and training should be devoted to later support of former students and trainees. Uses for the fund could include journal subscriptions, an information service, occasional small grants for books or equipment, occasional grants for conference attendance, and the establishment of a network in each developing country or region, with a newsletter.

4.29 The Committee also recommend that the Books Presentation Programme should be expanded, and that it should not be limited only to institutions where Technical Co-operation projects are in progress. The scope of voluntary organisations in this field, such as the Ranfurly Trust, should not be overlooked. The Committee recommend that the British Council should give urgent consideration to ways of providing a much improved supply of up-to-date technical journals to appropriate institutions in developing countries.

4.30 Any aid project in which equipment (whether it be scientific instruments or large power plant) is supplied should make provision for the supply of spare parts and materials, and training for maintenance of the equipment. Consumables should also be budgeted for. Although such expenditure may necessitate a small reduction in the number of projects started, those that are initiated will stand a better chance of lasting success.

4.31 The Committee recognise the valuable role played by British Council libraries in developing countries. In many areas such a library will represent the major technical information resource. The Committee recommend that strong support for these libraries be maintained.

¹ See AAAS and the Developing World, information sheet published by AAAS.

² *ibid.*

³ *ibid.*

Research

4.32 Research into the problems and needs of developing countries underpins much of the aid programme. The British Council suggested however that “there is often a mismatch between donor and recipient priorities for science and technology aid with the recipient wanting more support for basic R&D”. While expressing some sympathy for the needs for a basic scientific infrastructure perceived by the developing country, they accept that British aid policy “concentrates correctly on economically relevant manpower development and institution building” and say that the “priority should, in most cases, be given to support applied science and technology” (P 50).

4.33 **The contribution which developed countries can make by means of research to solving the problems of developing countries is central to the effectiveness of S&T aid. The United Kingdom has some comparative advantage in basic science and, as technology transfer must be supported by new ideas and techniques, this is a valuable asset which must be maintained (see paragraphs 5.13–5.14 below). However the most pressing need within developing countries is often for applied research that is location-specific. The Committee therefore welcome ODA’s increased emphasis on applied research and technology transfer.** The list of examples of ODA-funded research successfully transferred to rural communities includes new methods for marketing cassava, improved tillage systems in the Sudan, biogas plants in Mauritius and more fuel-efficient cooking stoves in a variety of countries (PP 258–259).

4.34 ODA suggested that *ex-post* evaluations show very high rates of return to research, particularly in agriculture (P 3). They said that, although it was difficult to evaluate accurately, it was apparent that “investment in well-managed agricultural research” often generated returns in excess of those likely from other types of rural development activity.

4.35 **While not disagreeing with these conclusions, the Committee consider that it is important to keep in mind ODA’s own evidence that research is only part of the process of technical change and that success depends also on dissemination of new knowledge and on institutional capacity to absorb and use research (see paragraph 3.6 above). The costs of such capacity should correctly be set against the benefits of the research results, when assessing the returns of that research.**

4.36 Much remains to be done to improve the effectiveness of research which supports aid. In industrialised countries the direction in which researchers “push” research is influenced by the “demand pull” of the informed users of research results in industry. This is rarely the case in developing countries. Much research therefore remains disconnected from production and does not meet the needs of final or intermediate users. Those local demands for science and technology that do exist within developing countries tend to provide a market for foreign suppliers rather than a stimulus to local capacities. **The Committee therefore urge ODA to strengthen the mechanisms by which users can express their S&T needs, and to emphasise the application of research results.**

4.37 Opinions differ as to where research is most effectively located. The Organisation of Eastern Caribbean States criticised S&T aid for being “concentrated in donor agency institutions rather than in indigenous institutions”. In particular “the United Kingdom does not seem to have an effective and flexible mechanism for dispensing R&D assistance to developing countries. For example, there is no institution comparable to the IDRC in Canada” (P 252). The Canadian Government provides a significant proportion of its official development assistance through the International Development Research Centre which provides funds for research formulated and carried out by nationals of developing countries in developing countries¹.

4.38 Agricultural research is particularly location specific and it was suggested that the “major problems [of agriculture] can only be studied within farmers’ fields...the real problem lies in adapting the technology to the farming systems in the tropics. This can only be achieved by on-farm research” (P 283). The Centre for Tropical Veterinary Medicine, on the other hand, said that in their field “it is more efficient to carry out sophisticated research in developed countries because they have the essential infrastructure. The ‘high tech’ research institutes that have been created in the third world are extremely expensive and tend to become ivory towers that are envied and resented by indigenous scientists working in poorly funded national institutions” (P 218).

¹ *Scientific and Technological Co-operation with Developing Countries*, OECD, Paris 1985, page 53.

4.39 ODA appear to take a similar view. Only about 20 per cent of their R&D funds supports work in developing countries using local people (P 23).

4.40 The Committee recognise that in certain circumstances it will be more efficient to carry out research in the United Kingdom, where facilities and personnel are readily available. This is particularly the case at the basic end of the research spectrum. It is also important for the United Kingdom's science base that some research related to the aid programme should take place here. However in the case of more applied research, and development, it will usually be more effectively performed in the environment in which the results will eventually be implemented. At the International Institute for Tropical Agriculture in Nigeria the Committee saw new techniques for increasing crop yields that had been developed by research teams of both Africans and Europeans. Moreover, the location of aid-funded research in a developing country can provide considerable benefits to the local scientific infrastructure. The Committee therefore recommend that ODA should seek to locate more aid-funded research in developing countries, using local personnel, whenever circumstances permit.

4.41 Trends in the funding of research are a cause for concern. Increasingly the need for research and product development is assessed in terms of whether there is a market for the final product; that is that the "need" is backed up by the "effective demand" of people willing to pay money for it. But it is clearly the essence of the aid relationship that recipients cannot necessarily buy the things they need. This distinction between needs and effective demand leads some to argue that aid to science and technology should be allocated by the "reverse of a commercial criterion"—that projects should be aid funded when commercial funds are not forthcoming¹.

4.42 The application of this criterion depends on a judgement of commercial prospects. A witness from AFRC said that finding "an industrial partner to develop a third world vaccine is like finding snow balls on the equator" (Q 762). The Centre for Tropical Veterinary Medicine said that "There are...no commercial vaccine production plants in the Sahel and the potential returns for a private plant outwith Africa are considered too meagre. Support...would pay enormous dividends in available animal protein, in an area subjected to food shortages, and in goodwill" (P 218). **Aid-related research should be continued if a clearly-defined need exists, even if there is no commercial market for the results and consequently no commercial sponsor available.**

4.43 Research in the past has failed appreciably to affect agricultural problems in Africa. Although in some areas overall levels of food production have risen, production per capita has fallen in Africa as a whole over the past 20 years (P 170). The absence in Africa of a Green Revolution (which resulted in India from the introduction of improved strains of food crops) was explained in part by the huge variation in physical conditions but also by the lack of a solid research base (QQ 774-6). Dr Jordan, Director of the Tsetse Research Laboratory, thought "the low regard in which agriculture is generally held as a way of life in Africa" was a contributory factor, together with political instability (P 287).

4.44 ODA suggested a number of explanations for the lower impact of research on agriculture in Africa, including "inappropriate fiscal and pricing policies, generally unfavourable and unresponsive agro-ecological conditions, inadequate farmer support services (credit, extension, marketing), and the low productivity of the national research institutions...the problems created by the rapid ebb and flow of donor fashions (as has happened with Farming System projects)" (P 7). A recent World Bank report says that "Africa's lack of technical skills and strong public and private institutions account more than anything else for its current predicament" and that "the slow development of new agricultural technology in the past two decades reflects the decline in the quality of agricultural research in Africa"².

4.45 On the other hand, Paul Richards, Reader in Anthropology at University College, London, observed that "it is important not to exaggerate the lack of impact of local agricultural research in the last 20-30 years" (P 279). He suggested that with sustained support and good management research specific to local conditions can produce results which, if not dramatic, are cost-effective.

¹ *Evaluation of ODA Sponsored Product Development*, ODA Evaluation Report EV 422, 1989, page 4.12.

² *Sub-Saharan Africa: From Crisis to Sustainable Growth*, World Bank, 1989, pages 190 & 99.

4.46 The Committee consider that the factor most likely to improve African agricultural productivity would be the creation of a supply of well-trained, well-supported manpower for the agricultural professions and related research. Such personnel, if sufficiently receptive to local customs and conditions, could encourage the development of a policy environment in which agriculture might flourish. This would include raising the economic and social status of farmers, thereby encouraging people in the rural communities to remain in agriculture. The “institution building” recommended in paragraphs 4.7–4.8 above should contribute to this end. Support for agricultural extension services should be given higher priority.

Technology

4.47 Although there is general agreement that the technology provided by S&T aid should always be appropriate to the circumstances in which it is applied, there is no simple definition of appropriate technology. The appropriateness of technology must obviously be judged on a case by case basis. This cannot be done without first specifying the target group who are meant to benefit from the technology, which must then be related to their absorptive capacity (Q 598).

4.48 But the question remains whether in practice there is a range of technical options from which a genuine choice can be made. With over 95 per cent of the world’s R&D taking place in developed countries, the available technologies are inevitably designed to meet conditions in developed rather than developing countries. This is illustrated by the evidence of OXFAM that European trucks available for emergency relief work are not appropriate to the task (Q 678, P 271), as they have only limited durability in the rugged conditions of developing countries and require sophisticated maintenance and imported spare parts.

4.49 It is the *raison d’être* of the charity Intermediate Technology Development Group Ltd (ITDG) to find technologies that are suitable for resource-poor communities and to demonstrate their viability to users and donor agencies alike (Q 597). However there is no suggestion in ITDG’s evidence that small scale “intermediate” technologies will be relevant for all third world needs. ITDG focus their attention specifically on the poorest majority of people living in the rural areas of developing countries. They then assist such communities to identify their needs and help them to remove both the technical and institutional obstacles to realising the benefits of new forms of productive employment. Such employment uses technologies which are intermediate in the sense of being “between the cheap but unproductive technologies presently used by most rural communities, and the expensive, sophisticated technologies used by modern industry” (P 136). Examples of technologies developed by ITDG included a small plant for manufacturing egg packaging from waste paper (P 138) and a solar kiln for seasoning timber (Q 634).

4.50 While there is some difficulty in defining what technology is “appropriate” in individual cases, witnesses appeared to find it easier to provide evidence of inappropriate technology. FAO and Professor David Hawkrige suggested that the practice of bilateral donors of “tying” aid to the supply of domestically-produced goods and services often leads to a choice of inappropriate technology (PP 223, 229).

4.51 The Committee consider that application and transfer of the technology best suited to local circumstances is vital. Unsuitable technology is a waste of aid funds and will never benefit the recipients. Technology can prove to be unsuitable for a great variety of reasons: it may require sophisticated maintenance or operational skills which are unavailable locally; it may require inputs or spare parts to be purchased with scarce foreign currency; it may produce an end-product for which there is no market; it may rely on a secure power supply which cannot always be guaranteed in a developing country; it may simply be needlessly expensive in circumstances where labour is readily and cheaply available.

4.52 The Committee strongly support the work of ITDG, which seeks to avoid obstacles of this kind, and to develop and disseminate technologies which meet the needs of developing communities without incurring other penalties. The Committee welcome ODA’s continuing financial commitment to ITDG.

4.53 However the Committee are not satisfied that this commitment to intermediate or appropriate technologies is adequately reflected in ODA’s own planning and procedures. The appointment by ODA of a part-time small enterprise adviser, “to assist geographical departments in identifying and preparing activities which promote small-scale enterprise development” (P 256), is a welcome move. But staff throughout ODA should be more aware of the potential of intermediate technologies

and more committed to their implementation in ODA-funded activities. The policy guidance issued in April 1978, emphasising the importance and desirability of intermediate technologies (P 255), appears to have had little effect, and should be reviewed.

4.54 The Committee recognise that on occasion the recipient country will resist the provision of an intermediate technology, requesting instead a more prestigious, sophisticated solution which may be quite unsuited to local conditions. Recipients are sometimes suspicious that provision of anything but the most up-to-date technology represents an attempt by the donor to fob them off with second-best.

4.55 The Committee recommend that ODA should encourage local production of technology appropriate to local conditions. This will improve local understanding of technological needs and enable local people to make informed choices of the most appropriate level of technology, whether domestic or imported, rather than be drawn to the latest refinement regardless of its suitability. It will also increase technological independence.

PART 5 THE UNITED KINGDOM'S RECORD AS A DONOR

Achievements

5.1 The evidence so far presents a daunting picture of the scale and complexity of the scientific and technological needs of developing countries. But much of the evidence is optimistic in tone and confirms the high quality of the United Kingdom's assistance to developing countries (PP 218, 229, 272, 283). According to the OECD "The United Kingdom is the OECD country which has played the most considerable scientific and technical role overseas, and for the longest time"¹. Joseph C Wheeler, Chairman of the DAC, said that "ODA has a good reputation for its seriousness of purpose and its application of good programming principles" (P 251).

5.2 On their overseas visits, the Committee found that both recipients and other aid donors praised both the quality of S&T aid from the United Kingdom, and the efficiency of its organisation. Relations between British officials and their developing country counterparts with whom proposals were discussed appeared to be good.

5.3 The Committee were impressed by the quality of the work described in the evidence and by the enthusiasm and dedication of witnesses, whether from the private sector, the Civil Service, non-governmental organisations, or academia. The high reputation of the United Kingdom as a donor of S&T aid seems to the Committee to be well deserved.

Capacity to provide S&T aid

5.4 Although there is general support for this high reputation, there is also a widely held view that the capacity of the United Kingdom to provide S&T aid is under threat and that it will be difficult to maintain the scale and quality of such aid in future. The following statement from the Principal and Vice-Chancellor of the University of Stirling is typical of this view:

"It seems very obvious to this University, with considerable experience of working for British and Scandinavian bilateral agencies, and for multilaterals, that the British bilateral programme, and the UK research backing it, are by far the most cost-effective, capable and successful at delivering. However, the increased pressure to reduce staffing in the Civil Service and to remove core funding and basic general research base from universities is rendering it very unlikely that this will be so by the 1990's" (P 295).

5.5 Hydraulics Research made a similar point—

"Whilst we believe that the UK system (as distinct from the quantum) of overseas aid can be held up as a shining example to the rest of the world, the effectiveness of this system is currently under pressure owing to cut-backs in staffing the overseas Development Divisions. There is a growing danger that for the sake of administrative efficiency a number of vitally important areas of research may be neglected or abandoned...A further threat is posed by the general tendency to go for large capital projects, influenced perhaps by the needs of the DTI...This then reduces the scope for technology transfer through training and research, the form of aid most effective for long term development" (P 229).

5.6 AFRC suggested that "the main trend discernible in the United Kingdom over the last decade has been the decline in public funding of overseas aid...This decline has led to major cuts in the support of agricultural research overseas and restructuring of organisations concerned with overseas research in the United Kingdom" (P 168).

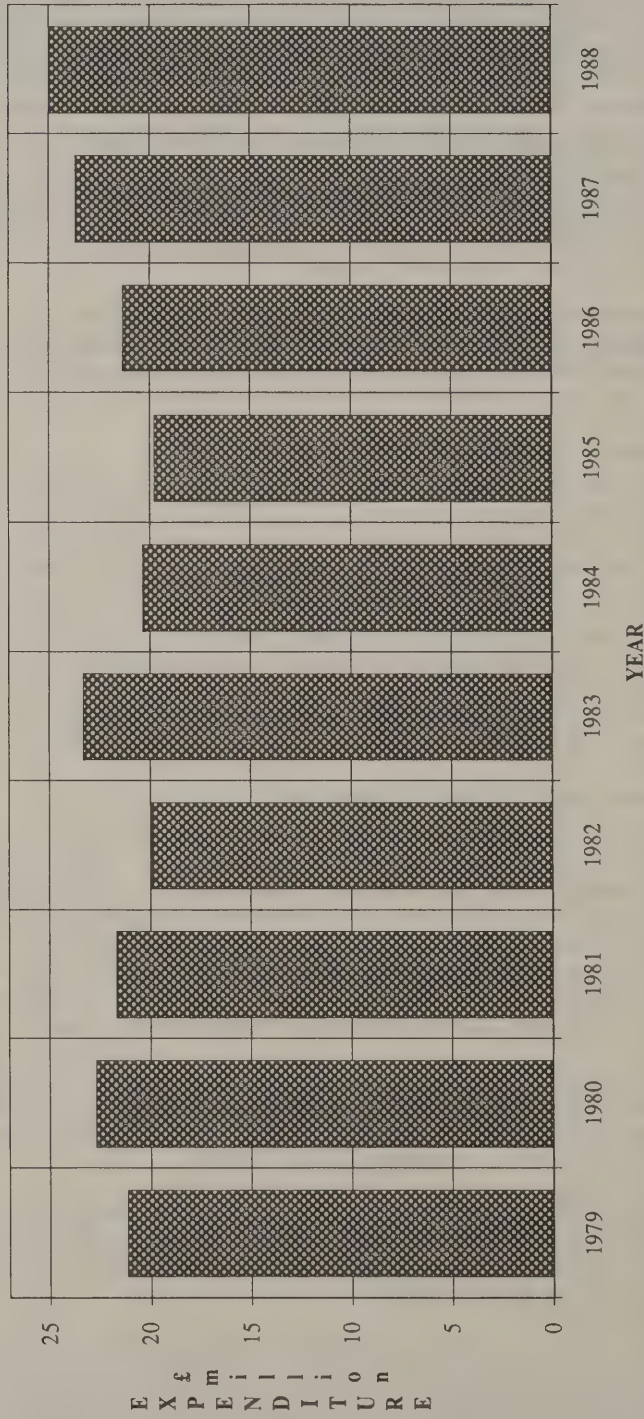
5.7 The Overseas Development Institute estimated that the number of person years of scientific and technological effort contributed by the institutes that now make up ODNRI fell from 639 in 1977/78 to 497 in 1982/83 and had further declined to 401 by 1986/87. They ascribed this largely to a reduction in ODA support (P 270).

5.8 ODA said that "the aid programme was broadly constant in real terms between 1982/83 and 1987/88; it has been growing in real terms since then" (P 38). However Figure 1 (page 11) shows that gross public expenditure on overseas aid declined in real terms from 1979 to 1987. Only since then have matters improved. Figures 5 and 6 show that expenditure on headings relevant to S&T aid has fluctuated considerably in recent years.

¹ *Scientific and Technological Co-operation with Developing Countries*, OECD, Paris 1985, page 23.

UK BILATERAL R&D EXPENDITURE 1979-1988 (CONSTANT 1987 PRICES)

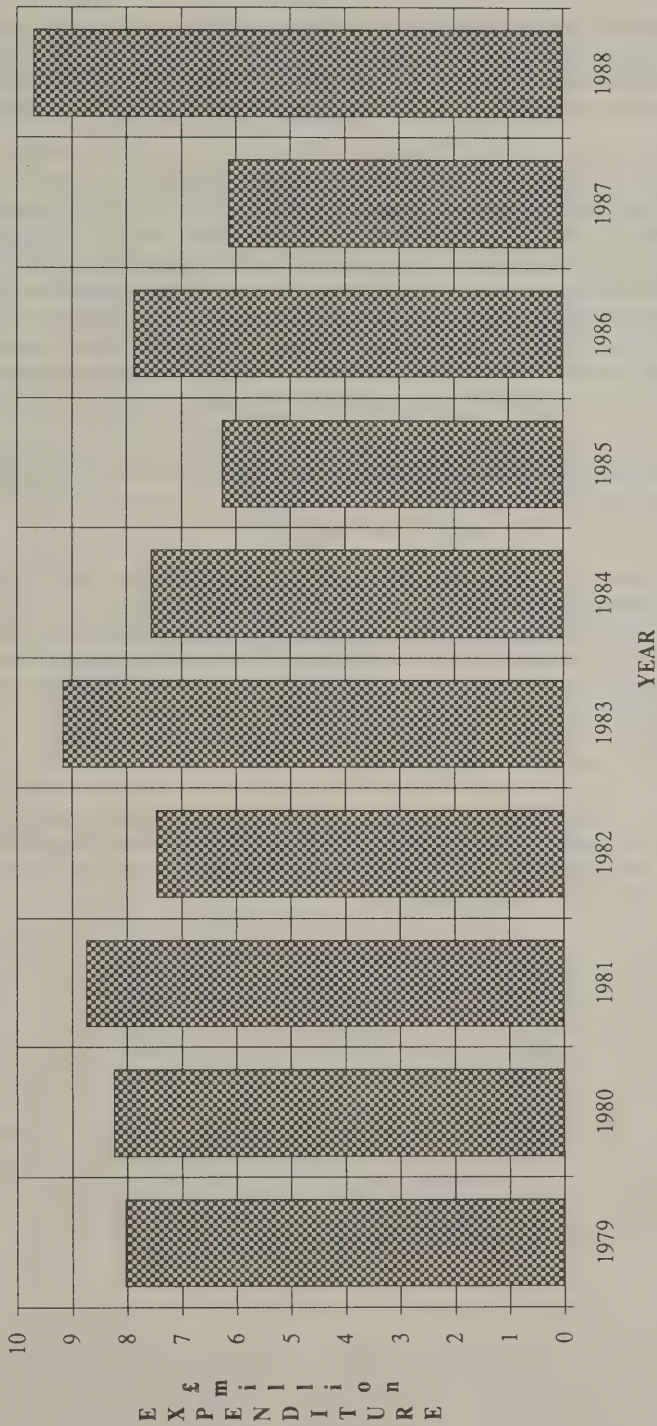
FIG. 5



Derived from "British Aid Statistics", ODA.

FIG. 6

ODNRI EXPENDITURE 1979-1988 (CONSTANT 1987 PRICES)



Derived from "British Aid Statistics", ODA.

5.9 The consequences of these changes are not yet clear, but they combine to produce considerable uncertainty in the S&T aid community. **Although the Committee recognise the need for ODA to maintain sufficient flexibility to meet changing needs, they consider that this uncertainty makes planning unreasonably difficult and is not the most efficient way of using resources.**

5.10 **The Committee recommend that ODA should maintain at least a constant level of support for activities related to S&T aid. A public commitment to that effect would do much to restore the confidence of those who are expected to provide S&T aid inputs. ODA should also be prepared in exceptional cases to commit funding for a longer period than that usually permitted by budgetary procedures.**

5.11 In addition to general uncertainty about funding of S&T aid, both the universities and the Research Councils are facing specific pressures (PP 5, 206, 249). The British Council observed that under current financial pressures the universities were only able to release their staff for development work if the full costs could be recovered from another source (Q 134). Although the Department of Education and Science is now prepared to pay only for activities with a direct benefit to the United Kingdom, it was suggested that ODA was unable or reluctant in a number of cases to fill the gap left by this tightening of the rules, and to reimburse the universities directly when they provide expertise to developing countries (P 229). The remit of the Research Councils is also being directed more closely to the immediate needs of the United Kingdom (P 5).

5.12 ODA noted “the increasing concern ... being expressed in both the United Kingdom and developing countries about the shrinkage [in Britain’s] ... relatively rich source of research capability [in Renewable Natural Resources]” (P 5). It is clear that this view is widespread and that it is not restricted only to natural resources (P 223).

5.13 **The Committee are much concerned by the deterioration in the United Kingdom’s capacity to respond to the science and technology needs of developing countries. They urge ODA to increase support for university and Research Council units with expertise related to the needs of developing countries in order to maintain the knowledge base. ODA must be prepared where necessary to pay the full economic cost of research relevant to S&T aid, whether by commissioning of individual projects, by delegating management of research programmes or by providing core funding. It must be the responsibility of ODA to ensure that the United Kingdom’s ability to provide effective, soundly-based S&T aid is not further eroded.**

5.14 **But it is unreasonable to expect that all work related to developing countries should be funded from the aid programme. While it is right that universities and Research Councils should determine their own priorities for use of the funds available to them, they should not ignore the problems and conditions of other countries.**

5.15 These changes in funding and emphasis take place against the background of a decline in the number of British people with the skills necessary to meet the S&T needs of developing countries (PP 235, 280). ODA said that “the retirement bulge for experts with overseas experience is already seen as a problem for the implementation of aid projects and research” (P 6). The Royal Society made a similar point in somewhat stronger terms: “the body of experience is decaying progressively. In the very near future this will fade away entirely” (Q 396).

5.16 Witnesses suggested that this decline in capability is not a consequence only of demographic change, or even of the level of funding. They suggested that the continuity of funding and reward systems that would allow an adequate career structure in the development business are simply not available (P 273). The Centre for Tropical Veterinary Medicine complained that “the provision of one year contracts is not the way to retain or attract expert and motivated staff” (P 218).

5.17 The Director of the Tsetse Research Laboratory suggested that the problem is one of very long standing. Even from the early post-colonial period “there was no policy to retain expertise in the subject area [of trypanosomiasis] ... some individuals have remained in the field more by luck than judgement, but much talent has been lost” (P 286). He said that “the belief held in some quarters that there is a large pool of appropriate scientific and technical talent just waiting to be employed on a contract basis is misguided” (P 287).

5.18 ODA’s ability to respond to this problem is limited, but they did recognise the need: “ODA’s response will be to encourage the retention of capability in key areas by concentrating

its resources”(P 6). The Institute of Biology advocated a more active response: “ODA could and should play an increasing role in ensuring that sufficient support is available for young biologists from this country to work in developing countries. ODA’s role should be not only to fund such young scientists directly, but also to stimulate commercial and other organisations to provide funding” (P 235).

5.19 The British Council also recognised that they “have to have a fairly positive attitude towards maintaining and in some cases creating the capacity to allow that commitment to the developing world to be carried through” (Q 114).

5.20 The Committee greatly regret the declining availability in the United Kingdom of S&T personnel with adequate experience of developing countries. While a greater use of local personnel in the administration and execution of S&T aid is both desirable and inevitable, if unchecked the decline in personnel in the United Kingdom will affect both the volume and the quality of the S&T aid which the United Kingdom is able to provide. There are a variety of ways in which ODA could tackle the problem, and the Committee recommend that they should consider the following:

- (i) a campaign to encourage the higher education sector, relevant professional institutions and employers to regard overseas experience as an asset in career development, so that individuals might choose to spend a period in a developing country in mid-career;
- (ii) systematic use of volunteer organisations to enable people seeking a career in development to obtain the necessary overseas experience;
- (iii) continuity of funding to S&T aid agencies, to improve stability and allow career structures to be established.

PART 6 PLANNING S&T AID

Policies and Priorities

6.1 A variety of witnesses reflected current dissatisfaction with planning procedures in ODA and pleaded for a more explicit statement of policy from Her Majesty's Government. The Royal Institution of Chartered Surveyors said that the UK aid programme "lacks long-term objectives" and that "a strategic plan should be formulated". They complained that "UK aid now varies in quantity and type so much from year to year that government departments and private companies find it difficult to retain overseas divisions dedicated to such work." (P 280). Dr T W Tanton, of the Institute of Irrigation Studies at the University of Southampton, and a former employee of ODA, said that "British research effort appears poorly organised and badly co-ordinated ... there appears to be...no long term plan/policy to overcome the problems" (P 283). The Vice-Chancellor of the University of East Anglia suggested that "measures should be taken to reduce the scattered and *ad hoc* nature of [S&T aid]" (P 293). The FAO said that "a common weakness of bilateral assistance is its *ad hoc* and short term nature" (P 223). WaterAid said that they "would like to see ODA more precise on what it wants the aid programme to achieve" (Q 583).

6.2 A number of witnesses said that they cannot find out what ODA's policies are. Professor Bourne of the AFRC said "we have never been quite sure what the strategy emerging from the ODA is" (Q 761). Similarly the Institute of Biology said that "several Fellows, with considerable experience of scientific aid to developing countries over many years, have commented that they have been unable to discern any consistent policy for determining priorities" (P 236). The Director of the Tsetse Research Laboratory also said that the way in which priorities are established in large applied field control projects has never been clear (P 287).

6.3 The Minister emphasised the importance of avoiding rigidity in policy. Decisions about allocation to different types of aid activity "are made at the individual country level in the light of the assessment of the country's needs, what its own government would like us to do, what other donors are doing ... what we are well equipped to do" (Q 827).

6.4 ODA said that they "are, in various fields, working hard to clarify [their] strategy" (Q 60). A Research Strategy for Renewable Natural Resources has recently been prepared, and was welcomed by witnesses. The Director of the Oxford Forestry Institute considered that the "preparation of ODA's natural resources policy document has been a major advance in the rational use of limited financial and manpower resources" (P 272). The ODI called the strategy "a welcome framework for resource allocation and a useful mechanism for commissioning research" (P 270).

6.5 ODA are currently preparing a research strategy for health, population and nutrition (P 10) and are revising priorities for engineering and economic and social research (P 260).

6.6 The Committee welcome these efforts of ODA to define and publicise their priorities for research. Such an exercise will be of value to those who provide research inputs to the aid programmes, as well as obliging ODA to think clearly about their intentions.

6.7 However all these initiatives relate only to research. The Committee found no evidence that ODA have any explicit mechanism for determining the appropriate balance of effort between the different sectors of S&T aid and between the activities associated with the fostering of technical change. While acknowledging the need for flexibility, to which the Minister drew attention, the Committee recommend that ODA should explicitly review the balance between different activities, to ensure that the whole chain of technical change is adequately covered. It is all too easy, for example, for research in this country to be supported at the expense of technology transfer and dissemination in the recipient country.

6.8 A variety of witnesses suggested that ODA make inadequate use of expertise available outside their own ranks and that in the formulation of policy ODA do not consult sufficiently widely (PP 208, 234, 287). The Vice-Chancellor of the University of East Anglia said that the ODA and British Council did not have adequate "procedures including external advisers, to ensure a systematic approach to utilisation of the United Kingdom's depth of expertise in appropriate [S&T aid]" (P 293). The Remote Sensing Society said that there was insufficient scientific input to the formulation of S&T aid policy (P 277). AFRC said that its scientists could "contribute more effectively than at present to overseas aid at policy and priority assessment

stages" (P 168) and said that "ODA is not fully making use of the expertise available in AFRC". AFRC were not, for example, formally consulted over the preparation of the Renewable Natural Resources Research Strategy (Q 750). They expressed a hope that there would not be a "progressive development and expansion of ODNRI facilities, when equivalent facilities and expertise are available in other research and university establishments in the United Kingdom" (P 196). The Royal Society also felt that insufficient use was made of available expertise (P 102).

6.9 The Institute of Biology said that "the substantial resources of knowledge in the United Kingdom, built up over many years, are not making the contributions they might". They noted that while considerably more funds are spent on agriculture, fisheries and forestry, than on medicine or economic and social research, there is no body specifically charged with ensuring a wide range of consultation. They suggested that there should be an agricultural and biological advisory body (similar to the Tropical Medicine Research Board and the Committee on Overseas Economic and Social Research) (P 234).

6.10 The Committee consider that ODA make insufficient use of the scientific and technical knowledge and skills of other bodies. In particular they are surprised that AFRC were not formally consulted over the preparation of the Renewable Natural Resources Research Strategy.

6.11 The Committee recommend that the Minister for Overseas Development should appoint an advisory panel of independent experts. It should include leading scientists and engineers from outside ODA, including representatives of the Research Councils, together with two or three Vice-Chancellors of universities. The panel's task would be to ensure that science and technology are used to the best possible effect throughout the aid programme and that proper use is made of scientific resources and developments outside ODA. They should ensure that the balance between activities is optimal and that due emphasis is given to activities which will encourage local capabilities in developing countries.

Comparative Advantage

6.12 The success of British S&T aid depends in large part on drawing on the range and depth of British capability. ODA refer to the United Kingdom's "comparative advantage" in providing S&T aid (P 5). The Minister said that ODA would "concentrate on things where we believe we have not only the expertise but also the *entree* with a specific country" (Q 853). However there can be very different perceptions of where our comparative advantage lies. ODA found it quite difficult to identify areas in which the United Kingdom did not have expertise (they cited geothermal energy, growing paddy rice, and grazing animals at high altitude) (Q 59) but they did not offer evidence of areas in which specific advantage lay.

6.13 The Royal Institution of Chartered Surveyors suggested that a trend in United Kingdom aid policy is "to put less emphasis on trying to provide assistance in those fields in which the United Kingdom has first class expertise" and cited surveying and mapping, land economy and quantity surveying as examples (P 281).

6.14 For the sake of efficient performance, the United Kingdom's aid programme should obviously concentrate on areas where particular expertise exists, within the range of activities for which recipients have a need. A more explicit determination of policies and priorities (see paragraphs 6.1 to 6.11 above) should facilitate this.

PART 7 TRENDS IN ODA POLICY

7.1 Although ODA said little about how their policies were evolving, other witnesses identified a number of apparent trends. These included “projectisation”, delegation of functions to other bodies on a commercial basis and increased emphasis of quantifiable objectives.

“Projectisation”

7.2 The Committee were told that ODA are moving towards a greater packaging of aid, whereby a problem or objective is identified and a variety of aid inputs are brought together to bear on it (QQ 57,67). Such an approach is commonly called “projectisation”. The trend was welcomed by the British Council (Q 136).

7.3 The Committee recognise that such an approach has advantages in some circumstances. The value of capital aid can be enhanced if supported by technical co-operation and training, for example. Management of a package is likely to be easier and more effective than administration of a large number of unconnected inputs. Identification of aims and targets, and evaluation of the results, are likely to be more specific. However the Committee are concerned that concentration on packages of inputs, each directed at a particular problem, could lead to other opportunities being overlooked. There is, for example, a pressing need in most developing countries for standards of scientific education generally to be raised. The Committee urge ODA to be aware of this, and not to concentrate on “projectisation” at the expense of more general inputs. The Committee consider that the planning of aid in packages could lead to an over-emphasis on short-term, quantifiable benefits, at the expense of longer-term changes which may be unquantifiable but are no less vital for development. The dangers of “projectisation” are particularly acute if a project is regarded as a self-contained entity, with too little done to capitalise on the lessons learned from executing a sequence of activities. The Committee recommend therefore that ODA should review from time to time the balance between project-linked inputs and others. The advisory panel which the Committee recommend in paragraph 6.11 above could assist with this review.

Time Scales

7.4 Another apparent trend in ODA’s policy is for increased emphasis on short-term, quantifiable benefits at the expense of less immediate aims. This is reflected in choices of activity and in decisions about funding. This concern was frequently voiced by witnesses (PP 240, 270, 273, 286–7). ODA acknowledged the need for a “long-term commitment” to maintain capacity for science and technology (P 3), but evidence from other witnesses strongly suggested that that commitment is not properly reflected in ODA practice.

7.5 AFRC said that “short term...funding and short term objectives can result in the choice of inappropriate priorities or projects” (P 168) and that “The understandable desire to offer immediate aid for immediate problems has...obscured the need to identify and address long-term objectives and requirements” (P 167).

7.6 NERC, a contractor in the aid field, stressed that “there needs to be continuity in aid provision so that relationships can be built up and appropriate follow-on actions taken” (P 248). The Director of the Oxford Forestry Institute drew attention to the inadequacy of the “3 or 5 year time horizons” of most agencies, especially in forestry or land use systems where results are slow to emerge (P 273). Other witnesses reinforced this point (PP 235, 280, 287). It was also noted that projects of “institution building”, to strengthen S&T infrastructure, require more consistent support (PP 253, 281).

7.7 Some witnesses said that the short-term focus of aid encouraged a tendency not to support the underlying scientific research in the United Kingdom on which other S&T aid is based. According to this view, current practices are “mining” our resources rather than “harvesting” them. According to the Principal of Stirling University “there are undesirable trends away from ODA being prepared to pay for adequate basic research, overheads and real United Kingdom science base costs in its efforts to be as cost effective as possible. This will destroy the base from which further research will grow if not subsequently redressed” (P 295).

7.8 The Secretary of AFRC similarly argued: “in the life sciences, there are ideas and new initiatives bubbling up everywhere. We do not have the opportunity to grasp these because the science base is insufficient” (Q 769). The Director of the AFRC Institute of Engineering Research observed that “unless [the development of technology] is country specific and therefore eligible

for Geographical Department funding it is not easy to finance on a regional or wider basis" (P 170).

7.9 Professor Jordan, Director of the Tsetse Research Laboratory, made the point that it is basic research which widens the options available in dealing with the rapidly changing circumstances in Africa. "The more we know about the basic biology of organisms (be they maize, cows or tsetse flies) the greater will be our options for manipulating them" (P 288). He also said that "much invaluable and innovative research can be stifled if it is judged only in relation to a larger project requiring an immediate economic return" (P 287).

7.10 The Overseas Surveys Directorate of Ordnance Survey drew attention to the tendency of current ODA project procedures to disadvantage the maintenance of data sets such as in meteorology, hydrology, resource inventories and national geographical data. Such activities in which the benefits are difficult to quantify are "less appealing than more immediate and more visible objectives" (P 119). ODA said this was a result of the "declining demand from developing countries for mapping services" (P 24). But a witness from the Commonwealth Science Council pointed out the acute needs for mapping in many countries (Q 196). It is difficult to argue with the view of the Ordnance Survey that "the geologist, the soil scientist and the forester are lost without maps" (QQ 556–557).

7.11 The Committee urge ODA not to overlook the need for long-term support of infrastructural activities. The drive for immediate, visible results should not be allowed to lead to a bias against those necessary and valuable activities which take longer to produce results.

7.12 ODA should moreover recognise the value of maintaining a supportive relationship over a prolonged period, whether with a research institution in the United Kingdom or with an institution or community in a developing country, and should establish financial mechanisms to achieve it. Even when financial support for a particular activity has been available for many years and is likely to continue in the future, the uncertainty resulting from a sequence of short-term commitments can be damaging—not least to the prospect of attracting and maintaining good staff.

7.13 Suggestions have been made that ODA is moving away from "core funding" of certain institutions in the United Kingdom (see paragraph 2.7 above), relying instead on funding specified, contracted activities. The Committee welcome the assurance of the Minister that changes in funding methods are not designed to deprive institutions of resources for their general upkeep (QQ 821–825). Where such changes in funding are implemented ODA should pay the 10 per cent general research surcharge on commissions, as recommended by the Rothschild Report¹. Such payment would contribute to the maintenance of the general research base of the institution.

Delegation

7.14 The increasing delegation of responsibilities outside ODA headquarters was commented on. The AFRC Institute of Engineering Research noted that "Responsibility for the management as well as the conduct of ODA funded aid is increasingly being transferred to outside agencies; both commercial consultants and public sector bodies". The Director regarded this as "a positive trend where the implementing agency can effectively manage large programmes. However it is important that the agencies concerned adopt policies which are harmonious with those of the United Kingdom aid programmes. This is unlikely to be the case with commercial consultants who usually do not have any reason to weight highly broad objectives" (P 170).

7.15 But witnesses suggested that ODA do not have sufficient staff to carry out the management function required, and do not use the staff they have to best effect. The Director of the Centre for Tropical Veterinary Medicine, at the University of Edinburgh, suggested that ODA "suffer from the 'clean cup—move round' syndrome with a too frequent turnover of staff at headquarters" (P 218). ITDG complained that ODA staff are "overworked and frequently changed; and this does not allow them to become acquainted with the issues involved or to develop new strategies" (P 140).

7.16 The shortage of staff in ODA is also implied in the recent evaluation of product development which states that "ODA advisers are not able to allocate the time required to gain a sufficient

¹ Cmnd 4814. The general research surcharge has been the subject of previous recommendations by the Committee. See for example Science and Technology Committee, 1st Report (1986–87), (HL 20-I) and 3rd Report (1988–89), (HL Paper 24).

understanding of the proposals to enable them to make an effective contribution to the selection process"¹. The Director of the Oxford Forestry Institute observed that "recent extreme staff shortages in ODA itself have encouraged administration of budgets rather than targetted management and projects" (P 272).

7.17 The Minister, on the other hand, was confident that ODA was an "intelligent customer". She drew attention to ODA's 129 in-house specialist advisers, each with wide-ranging contacts outside ODA, who could monitor and assess the activities and advice of contractors. She felt that there were "enough checks and balances" to ensure that objective advice was given (Q 806).

7.18 The Committee welcome the increased delegation of responsibility for portions of the aid programme to agencies. This can be an effective way of organising activity, as is shown by the successful management of the forestry research programme by the Oxford Forestry Institute, and the good record of the British Council in management of Technical Co-operation projects.

7.19 However, if such a policy of delegation is to be pursued, it is essential that ODA have sufficient management and professional resources to oversee the programme and to ensure a dovetailing of activities. The Committee are not confident that this is now the case. They recommend a detailed examination of the numbers and level of ODA staff resources.

7.20 The Committee also note that the increase in delegation of activities to other organisations involves ODA in more commercial relationships. As a result ODNRI, the Research Councils and universities are likely to be regarded by ODA as potential contractors with a commercial interest in decisions made by ODA². The Committee are concerned that as a result it will soon be difficult for ODA to procure impartial scientific and technical advice. Indeed, the Committee already sense a certain reluctance on the part of some witnesses to comment on the activities of ODA. ODA should be cautious of fostering a climate of such commercial pressure that they have difficulty in obtaining impartial advice from other United Kingdom organisations involved in S&T aid.

7.21 If ODA are determined nevertheless to continue on this course, it will be even more imperative that they have adequate personnel in-house, capable of giving impartial, well-informed advice.

The Environment

7.22 The importance of sensible environmental conservation is increasingly influencing aid policy and this is an area in which science and technology must play a full role. The Minister acknowledged that a wide range of environmental issues would be among the key areas for aid involvement in the future (Q 852). Environmental considerations are unlikely to be dealt with adequately only on a project-by-project basis, but require an overall strategy and purpose.

7.23 NERC noted that the pattern of aid provision is changing "as a result of ... the increasing awareness of environmental issues" (P 246). The Director of the Oxford Forestry Institute said that an obvious trend is "the recognition of the place of forestry in the development process ... and in the maintenance and enhancement of the environment" (P 272). ODNRI expected the new awareness of environmental matters to result in an expansion of relevant research and in "increased involvement of ODNRI experts in assessing the environmental effects of development projects at the planning stage, and in monitoring the effect of projects on the environment". Changes in the staffing composition of the Institute are likely (P 269).

7.24 The International Institute for Environment and Development (IIED) welcomed ODA's "increased awareness of the importance of the environment-development link" and welcomed the recent appointment of an environmental adviser but suggested that the volume of work would be too great for a single individual (P 236).

7.25 IIED drew attention to the Brundtland Report's definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (P 236). In a recent report, a number of agencies urged that bilateral aid should support "special programmes to help restore, protect, and improve the

¹ *Evaluation of ODA Sponsored Product Development*, ODA Evaluation Report EV 422, 1989, page 4.12.

² The decision that ODNRI should become a free-standing executive agency is significant in this respect. (See HC Deb, 19th December 1989, col. 121W.)

ecological basis for development in many developing countries; and special programmes for strengthening the institutional and professional capacities needed for sustainable development”¹.

7.26 The Committee welcome ODA’s growing commitment to conservation of the environment and their recognition of the potential damage caused by development activities. In future the importance of sound environmental policies must be recognised as central to an effective aid programme. The preparation of the Manual of Environmental Appraisal and the announcement in November 1989 of a block grant to the World Wide Fund for Nature are positive steps in this direction. The Committee also welcome the emphasis given to environmental impacts in the guidelines for NGO applicants for support from the Joint Funding Scheme.

Commercialisation

7.27 The evidence reviewed in Part 3 emphasised the importance of a number of inter-related actions if the process of technical change was to be effective. The final stage of the process is often that of getting users to adopt new practices or new technology. The AFRC Institute of Engineering Research “noted a tendency for the divisions between disciplines and areas of activity in the ODA to become more pronounced ... multi-faceted projects involving research, development and extension are thus more difficult to implement. This is often unfortunate as more often than not the 20:80 ratio rule applies in that 20 per cent of the effort may be required to develop technology but 80 per cent is required to disseminate and apply it effectively. No funds are specifically allocated for the application of research”(P 170).

7.28 A recent evaluation report² provides considerable insight into ODA efforts at commercialisation. **This is a highly critical document, and it reflects well on ODA’s strength and willingness to improve their procedures, that they should commission such an independent study and publish it openly.**

7.29 The report reviewed six products developed by ODA-supported research units³ which are regarded as a representative sample both of the work of the units and of other products developed. They range from a sludge tanker for pit latrines, to rain gauges, to computer software for use in the analysis of road accidents. On this basis the evaluators conclude that “in short, the Units are generally good at making things, but not so good at thinking about or coping with how to get them used” (page 1.11).

7.30 While the report predicts positive socio-economic returns from the majority of the products examined, it says that ODA “is neither a good director nor co-operator in this area of activity” (page 1.11).

7.31 The products were rarely patentable innovations, and the report argues that licences and royalty payments actually conflict with ODA’s objectives of getting products used. In general the report holds that ODA objectives would usually be best met by encouraging the manufacture of the products in developing countries (page 1.8). The Committee therefore welcome ODA’s evidence that “the results of research are made freely available and the widest possible publication is encouraged” (P 23).

7.32 The Committee recommend that ODA should apply the findings of the evaluation report to improve the Units’ performance in product development. In particular attention should be given to marketing and to collaboration with developing country manufacturers.

7.33 Other aspects of commercialisation were raised by witnesses. Aid is a highly competitive process, both between aid donors and between the suppliers of goods and services financed by aid. The Committee were struck by the contrasts between the aggressive approach adopted by some institutions such as NERC and the British Council in seeking contracts (the former by appointing agents in Washington and the Philippines (P 247)) and the problems faced by others, such as Ordnance Survey. The latter remarked that “it is a very competitive scene in bidding

¹ *Britain and the Brundtland Report—A Programme of Action for Sustainable Development* Published jointly by Friends of the Earth, Quaker Peace and Service, Survival International, United Nations Association—UK, World Development Movement, World Wide Fund for Nature—UK.

² *Evaluation of ODA Sponsored Product Development*, Evaluation Report EV 422, 1989.

³ The units covered were the Tropical Development and Research Institute (now incorporated in ODNRI), the Institute of Hydrology, the Building Research Establishment, Hydraulics Research Limited, the Institute of Engineering Research and the Transport and Road Research Laboratory.

for international aid money. It is not very rewarding in that one has to expend a lot of effort and a good deal of money in presenting bids that may well fail" (Q 517).

7.34 Evidence from the DTI suggests that United Kingdom contractors do extremely well in winning contracts under multilateral aid (PP 220-2), though it is to be expected that there is considerable variation in specific fields covered by these aggregate data.

7.35 The British Council suggest that they are highly successful in winning contracts (Q 145) but point to competitors from other countries who "can rely on active co-financing or subsidy support from the official bilateral programme" (Q 137).

PART 8 OTHER DONORS

Multilateral Aid

8.1 No clear pattern emerges from the evidence about the relative merits of bilateral and multilateral aid. They appear to complement each other. The British Council commented on the "great value in the kind of small scale sensitive deployment of aid in science and technology of which only bilateral agencies seem capable" (P 51). The CSC on the other hand observed that "forms of multilateral partnership in S&T [are] in general more beneficial" (P 74).

8.2 Joseph C Wheeler, Chairman of the DAC, commented that "bilateral aid is often not sufficiently well-co-ordinated with support being provided by other donors. Multilateral institutions seem to find it easier to pull the strands of activity together" (P 251).

8.3 The FAO suggested that bilateral aid had advantages "in terms of greater flexibility and shorter response times". However multilateral aid was more likely to meet recipients' needs because it was not tied to goods and services from one donor country, and was also likely to "provide greater continuity" (P 223). The United Nations Industrial Development Organisation also suggested that multilateral aid was more likely to emphasise "the interests of the recipient rather than those of the donor" (P 290).

8.4 The Remote Sensing Society was very critical of multilateral agencies, suggesting they "are wasteful of resources, staffed at enormous expense and frequently duplicate studies and projects". However it also acknowledged that their political neutrality makes them widely acceptable to recipients, and their size and prestige mean they can attract the best available expertise and maintain comprehensive facilities. For these reasons support to them should continue (P 278).

8.5 The Director of the Oxford Forestry Institute also mentioned the "bureaucracy and cost" of international agencies. He noted that bilateral aid inevitably allowed maximum use and recognition of British inputs, and was of greatest benefit to the United Kingdom in terms of diplomacy and commercial openings (P 273).

8.6 NERC suggested that institution building and counterpart training were more effectively handled by bilateral than multilateral aid (P 250).

8.7 The Institute of Biology recognised the effectiveness of bilateral aid, but particularly valued the pooling of knowledge and facilities made possible by multilateral arrangements. They noted that the CGIAR's "concentration of research efforts...have resulted in much faster progress in agricultural development than anyone had anticipated" (P 235).

8.8 The Committee acknowledge that multilateral and bilateral aid each have their respective advantages. Multilateral aid is well-suited to large and costly projects, and is regarded by recipients as more neutral in intention. Multilateral agencies also have a role in developing a wider policy framework into which bilateral programmes can be fitted. Bilateral aid will usually have lower overhead costs, be easier to monitor and facilitate direct relationships. An effective aid programme must obviously achieve a balance between these virtues.

8.9 The Committee would be concerned if growth in the multilateral element of the aid programme were allowed to erode the bilateral effort on S&T aid. If multilateral aid is to go on increasing the overall aid budget must be increased. ODA should also ensure that as much as possible of the multilateral aid to which the United Kingdom contributes is devoted to effective S&T aid.

8.10 On quality of staff of multilateral agencies the Committee strongly support the view of ODA who say that their "overriding concern is that the multilateral institutions should be staffed so as to secure the highest standards of efficiency and technical competence" (P 263).

8.11 In view of the growing proportion of the British aid budget which is channelled through multilaterals, the Committee consider it important that the United Kingdom should be adequately represented at sufficiently senior levels in those institutions. The Committee therefore welcome the evidence from ODA which indicates that the position is at present good (P 264). The Committee recommend that ODA should take an active role in encouraging good British applicants for vacancies.

Cooperation between Donors

8.12 Witnesses argued for better co-ordination between the bilateral and multilateral programmes (PP 288, 293). Co-ordination does take place and it is clearly a costly and time consuming business (QQ 32–34).

8.13 The Director of the Oxford Forestry Institute emphasised the need for aid donors to co-ordinate their activities and to achieve collaboration. He drew attention to the Tropical Forestry Action Plan under which major donors meet to identify resources and agree topics for support (P 273).

8.14 The Institute of Biology said the “effectiveness and economic efficiency of both multilateral and bilateral aid projects could be increased if funding ... was more carefully coordinated” (P 234) and that “the results of some of the multilateral projects could be more fully utilised in the implementation of bilateral projects” (P 236).

8.15 On their visit to Ghana the Committee heard that an effective donor co-ordination system, under the leadership of the World Bank, is in place there. Regular meetings of donors take place at which new ideas and commitments are discussed. The Ghanaian government is often represented at the meetings and this may be one reason for their comparative success. It has been suggested that some other developing country governments are resentful and suspicious of meetings among donors, and that this makes co-ordination very difficult.

8.16 In an attempt to find out how British aid might be improved the Committee asked a number of witnesses what innovations they saw in other donors’ activities that might be emulated by the United Kingdom. The response was disappointing, suggesting in part that people outside ODA have insufficient knowledge of the activities of other donors. The ODA obtains information on the activities of other donors either through participation in the decision-making process of the multilateral agencies or through the Development Assistance Committee of the OECD in Paris (Q 32). It is possible that ODA do not share this information sufficiently with other British organisations involved in STA.

8.17 **The Committee consider that better co-ordination of the activities of different aid donors could enhance their value and improve their efficiency. They were glad to discover that the United Kingdom is regarded as reliable and imaginative in identifying ways in which British aid inputs can be “added on” to World Bank projects, increasing the usefulness of all contributions.**

8.18 **The Committee recommend that, where no effective mechanism exists for co-ordination of donor activities, in a country where the United Kingdom is a major donor, ODA should seek to initiate one in co-operation with the recipient government and where possible with the World Bank. ODA should be aware of the value of learning from other donors. They should attempt to pass on experience gained to other agencies in the United Kingdom involved in S&T aid.**

8.19 **The Committee have not considered in any detail the European Community’s practices as an aid donor. However given that the EC is an increasingly important channel for the United Kingdom’s aid expenditure, ODA should encourage the most efficient use of EC funds for S&T aid and ensure adequate co-ordination between United Kingdom and EC activities.**

Relationship between ODA and the British Council

8.20 The Committee were struck by the complexity of the relationship between ODA and the British Council. The British Council expect a major joint review of the British Council’s “methodology in relation to ODA” (Q 79, Q 176). They hope this will result in more precise contractual terms (similar to those which they have with multilateral agencies) (Q 136). Some dissatisfaction was expressed by individuals over the formal terms of the relationship, with responsibilities inadequately defined and lines of communication less than clear. In particular it was suggested that ODA made too little use of the local contacts and knowledge built up by the British Council, when determining proposals for action. The Minister hoped that new arrangements “will give a clear relationship for the work we are doing together and provide a greater clarity as to the precise services the Council is providing” (Q 837).

8.21 **On their visits overseas, the Committee found that the relationship between ODA and the British Council works very well in practice. The two organisations co-operate effectively. However it seemed to the Committee that the effectiveness of the relationship resulted from the enthusiasm**

and commitment of the individuals involved and that, given different personalities, there could be scope for confusion and duplication.

8.22 The Committee acknowledge that interaction between ODA and the Council will inevitably be complicated, as the Council undertakes its own activities funded by "mixed money" from the Foreign and Commonwealth Office and from ODA, as well as acting as managing agent on a contract basis for specific ODA projects (Q 86). It is also inevitable that lively and well-informed British Council staff, being so closely involved with ODA work, will wish to make a positive input to the formulation of ideas and proposals.

8.23 The Committee therefore recommend that the FCO should define the areas of responsibility of the two organisations, but without sacrificing the flexibility which currently exists. British Council staff should accept that, because of budgetary implications and the need to maintain an overall view of the programme, ODA must retain control over policy decisions. However ODA should in turn ensure that the British Council are encouraged to feed in advice and suggestions arising from their detailed local experience.

Non-Governmental Organisations

8.24 NGOs have a growing part to play as channels of official aid funds. Witnesses remarked that NGOs are particularly able at getting aid funds to poor people (Q 14, P 294) and side-stepping central government bureaucracy. They also have a good record of co-operation with local organisations and individuals. WaterAid, for example, insists on "maximum self-help community participation" in protecting springs from pollution and in constructing hand-dug wells (P 129).

8.25 The Joint Funding Scheme (JFS), by which under certain circumstances ODA matches funds raised by the charities, appears to be working well. Witnesses from OXFAM and Christian Aid said that the procedures of the JFS worked efficiently and quickly, with a good degree of flexibility on both sides (QQ 706, 709-711). WaterAid shared this view (QQ 567-568, P 130), as did the NGO officials whom the Committee met overseas. Applications for support are governed by a clear and thorough set of guidelines, which require the NGO to undertake a rigorous process of planning and analysis, to ensure the effectiveness of the proposed project. However it was noted that the staffing of the JFS by ODA was not adequate (QQ 706-708). ODA were said to provide a smaller proportion of their aid in this way than do other donors (P 130, Q 618) and a number of witnesses expressed a wish for increased support of NGOs under the aid programme (PP 294, 295).

8.26 The Committee consider that NGOs have certain great advantages in S&T aid. They are able to work closely with local communities in developing countries and so are in touch with local needs and can ensure that their work is well suited to local conditions. They are also well-placed to develop and use the skills of local people. Moreover they can avoid the formal and time-consuming procedures which can constrain government-to-government aid. The Committee were impressed during their overseas visits by what they saw and heard of the work of British NGOs. They therefore greatly welcome ODA's continuing support to NGOs, and particularly the 25 per cent increase in the Joint Funding Scheme announced in October 1989 by the Minister. This increase brings the total of the JFS for 1990 to £20 million, a very substantial sum.

8.27 The Committee recommend that this increase should be supported by an increase in the staff administering the Scheme, to ensure that its effectiveness is not compromised. Given that a ceiling of £500,000 is generally applied to ODA contributions under the JFS, the increase in the JFS budget will inevitably result in more projects and more staff are likely to be necessary.

The Private Sector

8.28 The private sector is making a significant contribution to technology transfer and the development of scientific and technological capacities in developing countries (PP 202, 208, 224, 226). The activities of commercial concerns are of course mostly commercially motivated, and cannot be described as aid. Nevertheless the provision of investment, information, training and advice by the private sector has a substantial impact, which should not be underestimated, on local levels of skills and knowledge. The Committee welcome this contribution, particularly as it is now widely recognised that private initiatives will have a central role in shaping the future for developing countries.

8.29 ODA said that they “will continue to encourage the private sector to invest in products and technologies for developing countries markets in which it would otherwise be less interested, by collaborating in research and by disseminating information on the appropriateness of new products” (P 6). Similarly CDC “aims to promote the transfer of skills to nationals of developing countries through joint ventures with enterprises from industrialised countries” (P 84).

8.30 British industry sometimes argues that it is not sufficiently supported by the official aid programme and that it is disadvantaged in relation to competitors who can apparently rely more heavily on support from their official aid programmes. Some support is given to this case by the fact that government departments did not have an overall view of what British businesses were doing in developing countries. The DTI said that “there is no information on the full extent” of British companies training developing country nationals (P 220).

8.31 The British Council also did not know the extent to which British businesses undertake training for developing countries: “it is very clear it goes on on a very large scale, but I think our experience overseas is that it goes on an even larger scale in other countries, particularly France and Germany, and therefore that there should be every encouragement to the private sector to do at least twice as much as it is already doing, however much it is” (Q 159).

8.32 However, a clear message comes from developing countries that they do not want a confusion between private sector activities and those of the official aid programme. Indeed there is a view that British aid is already too closely tied to the interests of British business.

8.33 British companies also undertake activities on a contract basis, with aid funds from a variety of sources. Evidence from both ODA and DTI showed that British performance in winning contracts from the multilateral agencies is good (QQ 27–29, P 222). DTI also suggested that British companies are “successful” in winning contracts funded by untied aid from other bilateral donors, but did not have details of the extent of this success.

8.34 The Committee welcome the important contribution which the private sector makes to transferring skills, knowledge and technology from developed to developing countries. ODA could increase the effectiveness of that contribution by supplementing private sector initiatives with aid-funded training and maintenance programmes. They should also explore ways of enhancing British bids for multilateral aid-funded contracts, by co-financing or subsidy support from the aid programme, in the way that other bilateral donors are said to do (P 51, QQ 137, 140).

PART 9 OPINION OF THE COMMITTEE AND SUMMARY OF RECOMMENDATIONS

Opinion of the Committee

9.1 The Committee emphasise the following major themes which have emerged in the course of their enquiry.

9.2 Aid should be first and foremost for the benefit of the recipients. The Committee welcome the assurance of Her Majesty's Government that the promotion of sustainable economic and social progress and the alleviation of poverty are the prime aims of the United Kingdom's overseas aid programme¹.

9.3 Aid can also provide opportunities for the United Kingdom in terms of foreign policy objectives and commercial advantages. Other things being equal, these should not be overlooked. However there will sometimes be conflict between the needs of recipients and the potential benefits for the United Kingdom. In such cases the needs of the recipients must be paramount in the aid programme.

9.4 There are a number of arguments in favour of generosity in aid expenditure. Humanitarian considerations are strong, when there are such pressing needs for assistance in so many countries. The interests of the United Kingdom are increasingly seen to be closely linked with those of other countries in the developing as well as the developed worlds. In view of these arguments the United Kingdom's aid expenditure, at 0.29 per cent of gross national product in 1987, is inadequate. Expenditure on aid should move towards the OECD target for oda, of 0.7 per cent of gross national product, as quickly as practicable.

9.5 S&T aid is a particularly effective means of promoting development. If properly managed it can provide long-lasting benefits by tackling underlying problems. It should be regarded as the backbone of the aid programme.

9.6 Science and technology pervade most areas of aid, not just research or education and not just in government institutions. The assessment of needs, the provision of consultancy and the choice of capital equipment all involve decisions about science and technology which can either enhance or undermine local capabilities. The United Kingdom's aid programme must be explicitly designed to enhance such capabilities.

9.7 S&T aid will always be most effective if it is part of a two-way relationship, rather than simply a one-way flow. Collaborative effort on the part of both donor and recipient is therefore important. In some cases this may mean real scientific collaboration, as in some of the joint research projects with India. Elsewhere it should involve local inputs by the recipient partner. At whatever level, this working together will be the essential element in ensuring that skills and knowledge are transferred both from developed to developing country, and from laboratory to user.

9.8 Investment in local human capital through education and training, and the transfer of scientific and technical knowledge, are essential to the future prosperity of the developing world. They will, if effectively applied, progressively lessen dependence on the skills and support of developed countries, and ultimately will enable real long-term growth to take place, sustained by a constructive partnership. The extent to which the United Kingdom aid programme contributes to building local capability is the true measure of its success.

9.9 The Committee agree with the Minister for Overseas Development that ODA have great depths of expertise and accomplishment (Q 857). They were therefore surprised by the reticence which appears to surround much of the policy debate within ODA and by the consequent ignorance in other quarters of ODA's activities (see paragraph 6.2 above). ODA have a record to be proud of. They should be prepared to make this record known, and to debate their policies more openly.

9.10 Although the overall level of expenditure is inadequate, the Committee conclude that in general the S&T input to the United Kingdom's overseas aid programme is effective and well managed. It achieves substantial benefits for recipient and donor alike. However there are ways in which it could be improved. The Committee's detailed conclusions and recommendations are summarised below.

¹ See paragraph 1.3 above.

Summary of Recommendations

9.11 The contribution of science and technology to sustainable development is crucial. They must play a major part in any aid programme (para 1.5).

THE NEEDS OF DEVELOPING COUNTRIES

9.12 ODA should define the processes by which S&T aid will contribute to the ultimate targets of development and ensure that adequate support is provided to each part of the process (para 3.8).

9.13 United Kingdom aid agencies should always seek the views of aid recipients about their needs. However suggestions and guidance from donors are important. S&T aid from the United Kingdom achieves a broadly acceptable balance between responding to the needs of recipients, and influencing activity (paras 3.17–3.18).

9.14 Her Majesty's Government should take up all opportunities for population activities under the bilateral programme, and seek increased action in international fora. Support for multilateral and non-governmental initiatives in the area of population and family planning should be increased (para 3.23).

SCIENTIFIC AND TECHNICAL INFRASTRUCTURE

9.15 Strengthening and support of the local S&T infrastructure of a developing country should be given higher priority in the United Kingdom aid programme. This is an area of great need, which the United Kingdom is well-placed to meet (paras 4.7–4.8).

9.16 British Council management and techniques for English language teaching are well-designed and effective, and its programmes should be expanded where possible. The BBC World Service should be strongly supported in its English teaching role (para 4.12).

9.17 More assistance with British university fees and charges should be introduced for students from the poorest developing countries (para 4.17).

9.18 More explicit consideration should be given, case by case, to the relative long-term costs and benefits of training in-country or in the United Kingdom (para 4.18).

9.19 It would be in the United Kingdom's interest for more university scholarships to be made available to students from developing countries. Additional funds should come from the Foreign and Commonwealth Office and the Department of Trade and Industry (paras 4.19–4.20).

9.20 A small proportion of the funds allocated for education and training should be devoted to later support of former aid-funded students and trainees (para 4.28).

9.21 The Books Presentation Programme should be expanded, and not limited to institutions where Technical Co-operation projects are in progress. The British Council should consider ways of improving the supply of technical journals (para 4.29).

9.22 Any aid project in which equipment is supplied should make better provision for spare parts, maintenance and consumables (para 4.30).

9.23 Strong support to British Council libraries should be maintained (para 4.31).

9.24 The Committee welcome ODA's increased emphasis on applied research and technology transfer (para 4.33).

9.25 Research is only part of the process of technical change. Success depends also on dissemination of new knowledge and an institutional capacity to absorb and use research (para 4.35).

9.26 ODA should locate more aid-funded research in developing countries, using local personnel, whenever circumstances permit (para 4.40).

9.27 Aid-related research and development should be continued if a need exists, even if there is no commercial market for the results and consequently no commercial sponsor is available (para 4.42).

9.28 “Institution building” should contribute to the creation of a supply of well-trained manpower for the agricultural professions and related research in Africa. Support for agricultural extension services should be given higher priority (para 4.46).

9.29 The Committee strongly support the work of ITDG and welcome ODA’s continuing financial commitment to that work (paras 4.51–4.52).

9.30 Staff throughout ODA should be more aware of the potential of technologies which are “intermediate” in scale and sophistication. Policy guidance on this subject should be reviewed (para 4.53).

9.31 ODA should encourage local production of technology appropriate to local conditions, to increase technological independence (para 4.54).

THE UNITED KINGDOM AS A DONOR

9.32 Uncertainty over levels of funding to specific S&T aid activities from year to year makes planning unreasonably difficult and is not the most efficient way of using resources. ODA should make a commitment to maintain at least a constant level of support for S&T and should be prepared on occasion to commit funding for a longer period than that usually permitted by budgetary procedures (paras 5.9–5.10).

9.33 ODA should increase support for university and Research Council units with expertise related to the needs of developing countries. ODA must ensure that the United Kingdom’s ability to provide effective, soundly-based S&T aid is not further eroded (para 5.13).

9.34 It is unreasonable to expect that all research related to developing countries should be funded from the aid programme. The United Kingdom science base should not ignore the problems of other countries. Levels of support should take this into account (para 5.14).

9.35 ODA should consider how to reverse the declining availability in the United Kingdom of S&T personnel with adequate experience of developing countries (para 5.20).

PLANNING S&T AID

9.36 The Committee welcome ODA’s recent efforts to define and publicise their priorities for research. A similar exercise should be carried out for areas of S&T activity other than research (paras 6.6–6.7).

9.37 The Minister for Overseas Development should appoint an advisory panel of independent experts to ensure that science and technology are used to best possible effect throughout the aid programme, and that greater use is made of external sources of expertise (paras 6.10–6.11).

9.38 A more explicit determination of policies and priorities should facilitate concentration of the aid programme on those areas of need with which the United Kingdom has particular expertise to assist (para 6.14).

TRENDS IN ODA POLICY

9.39 In view of the potential dangers of excessive “projectisation”, ODA should review from time to time the balance between project-linked inputs and others (para 7.3).

9.40 ODA should not overlook the need for long-term support of infrastructural activities which may not provide immediate results (para 7.11).

9.41 ODA should establish financial mechanisms to allow the maintenance of supportive relationships with S&T institutions, over a prolonged period (para 7.12).

9.42 Where ODA commission research they should pay a 10 per cent general research surcharge, to maintain the general research base of the institution concerned (para 7.13).

9.43 The Committee recommend a review of ODA staffing with a view to strengthening the management and professional resources (para 7.19).

9.44 Too much delegation of activities to organisations outside ODA, on a commercial basis, could result in ODA finding it difficult to obtain impartial advice from other quarters, and in a need for more in-house advisers (paras 7.20–7.21).

9.45 The Committee welcome ODA's growing commitment to conservation of the environment and their recognition of the potential damage caused by development (para 7.26).

9.46 ODA should use the findings of their recent evaluation report to improve their performance in product development (para 7.32).

OTHER DONORS

9.47 If multilateral aid is to go on increasing, the overall aid budget must be increased to prevent erosion of the bilateral effort on S&T aid. ODA should also ensure that as much as possible of multilateral aid to which the United Kingdom contributes is devoted to effective S&T aid (para 8.9).

9.48 ODA should take an active role in encouraging good British applicants for vacancies among senior staff of the multilateral agencies (para 8.11).

9.49 Where no effective mechanism exists for co-ordination of donor activities, ODA should take steps to initiate one (paras 8.17–8.18).

9.50 The relationship between ODA and the British Council works very well in practice but its effectiveness appears to result from the enthusiasm and commitment of the individuals involved. Given different personalities, there could be scope for confusion and duplication. The Committee recommend that the FCO should more carefully define areas of responsibility without sacrificing the flexibility which currently exists (paras 8.21–8.23).

9.51 NGOs have great advantages in S&T aid and the Committee were impressed by their work. The Committee greatly welcome ODA's increased support to NGOs (para 8.26).

9.52 The increase in the Joint Funding Scheme should be supported by an increase in the staff administering the scheme, to ensure that its effectiveness is not compromised (para 8.27).

9.53 The Committee welcome the contribution of the private sector to transferring skills and technology from developed to developing countries. ODA could increase the effectiveness of that contribution by supplementing private sector initiatives with training and maintenance programmes and enhancing British bids for aid-funded contracts (paras 8.28, 8.34).

APPENDIX 1

Sub-Committee I (Overseas Aid)

The members of the Sub-Committee which conducted this enquiry were:

L. Adrian
L. Butterworth
V. Caldecote (Chairman)
E. Ilchester
L. Perry of Walton
L. Shackleton
L. Taylor of Blackburn
L. Thurlow
L. Walston
B. White

Andrew Barnett, Leader, Developing Country Group, Science Policy Research Unit, was appointed as Specialist Adviser.

APPENDIX 2

List of Witnesses

The following witnesses gave evidence. Those marked * gave oral evidence

African Regional Centre for Technology
All-Party Parliamentary Group on Population and Development
American Association for the Advancement of Science
Aga Khan Foundation
*Agricultural and Food Research Council
Association of the British Pharmaceutical Industry
British Association for the Advancement of Science
BBC World Service
British Consultants Bureau
*British Council
British Petroleum plc
Building Research Establishment, Department of the Environment
*Catholic Fund for Overseas Development
Centre for Tropical Veterinary Medicine
*Christian Aid
Committee of Vice-Chancellors and Principals
*Commonwealth Development Corporation
*Commonwealth Science Council
Department of Trade and Industry
Fellowship of Engineering
Food and Agriculture Organization of the UN
General Electric Company plc
Glaxo Holdings plc
Dr P Gummett
Professor David Hawkrigde
Hydraulics Research
Institute of Biology
*Intermediate Technology Development Group Ltd
International Institute for Environment and Development
International Maritime Organization
International Pesticide Application Research Centre
Ministry of Defence
Natural Environment Research Council
*Ordnance Survey
Organisation for Economic Co-operation and Development
Organisation of Eastern Caribbean States
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University of Reading

University of Southampton

University of Stirling

*WaterAid

Zambia—Ministry of Higher Education, Science and Technology

Zimbabwe—Ministry of Finance, Economic Planning and Development

APPENDIX 3

List of Abbreviations

AAAS	American Association for the Advancement of Science
AFRC	Agricultural & Food Research Council
CAFOD	Catholic Fund for Overseas Development
CDC	Commonwealth Development Corporation
DAC	Development Assistance Committee of the OECD
EC	European Community
FAO	Food & Agriculture Organization of the UN
IBRD	International Bank for Reconstruction and Development (World Bank)
IDA	International Development Association
IDB	Inter-American Development Bank
IDRC	International Development Research Centre (Canada)
IFAD	International Fund for Agricultural Development
IIED	International Institute for Environment and Development
ITDG	Intermediate Technology Development Group Limited
JFS	Joint Funding Scheme
NERC	Natural Environment Research Council
NGO	non-governmental organisation
oda	official development assistance
ODA	Overseas Development Administration
ODI	Overseas Development Institute
ODNRI	Overseas Development Natural Resources Institute
OECD	Organisation for Economic Co-operation and Development
UNDP	United Nations Development Programme
UNHCR	United Nations High Commission for Refugees
UNRWA	United Nations Relief and Works Agency
UNICEF	United Nations Children's Fund
UNTA	United Nations Transitional Assistance Group for Namibia
UNFPA	United Nations Fund for Population Activities
WFP	World Food Programme

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